

# FLIGHT

&  
The AIRCRAFT  
ENGINEER.

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport.  
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### NOTICE OF REMOVAL.

The Offices—Editorial and Advertisement of "FLIGHT and The Aircraft Engineer"—on November 10th will be removed to more convenient premises at

36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.

The telephone number remains Gerrard 1828, and the telegraphic address is Truditur, Westcent, London.

All communications should therefore, as from and including November 10th, be addressed to

36, Great Queen Street,  
Kingsway,  
London, W.C. 2.

### EDITORIAL COMMENT.

"PUBLICIST," whose letters are becoming a feature of the *Times*, has a few interesting, not to say pertinent, remarks to make on the subject of air raids in general and the official attitude *vis-à-vis* the public in particular. He points out with perfect truth that the whole course of the war has shown that the public is willing to believe, unless it has good reason to the contrary, that the men responsible for

The "running the show" are doing their best, Government and to accept without question any official version of events which has the appearance of frankness. Sometimes the Government has had a pretty poor case; sometimes a perfectly good one. Apart from a few exceptionally ignorant or dishonest papers, the Press as a whole has no desire to harass struggling officials

amidst innumerable difficulties to do their duty to the country. Nor does the Press desire to publish anything that could be of advantage to the enemy, but what the Press and the public alike insist upon is that they shall be told enough to enable them to decide whether the paid servants of the community are doing as much as can reasonably be expected of them. This is precisely the lesson which far too many officials appear not to have learnt. "Publicist" says that it is reported that a high official of the Horse Guards, when asked whether he did not think the public was entitled to know why no aeroplanes, no searchlights, and no anti-aircraft guns were apparently in readiness to meet the raiders on the occasion of the last visit of the Zeppelins, replied:

"It has nothing to do with the public. We have no intention of telling them why we did not have an artillery barrage, nor where our aeroplanes were. Our plans for dealing with the Zeppelins are not for public information."

Undoubtedly the question might have been better framed, but we do agree that the reply is entirely eloquent of the attitude of a certain type of official towards his employers, the public. Differently expressed, the question was a perfectly right and proper one at the time, and, speaking with knowledge of what *did* happen on that Friday night, we say that those responsible for the defences of London had a very good case indeed, a case that it is not in the least helped by the cynical indifference displayed by this "high official" in his reply to his questioner. It is true that the reasons for our apparent unpreparedness—which was only apparent—were partially explained in Parliament in reply to questions put to the leader of the House, but the explanation lost three-fourths of its value owing to its being belated. Moreover, had that

Same explanation been forthcoming by way of a statement to the Press on the Saturday, we might have been saved the undignified and unedifying spectacle of the House of Commons adjourning to discuss what was, after all, merely an incident in the war. Here was eminently a case in which frankness would have looked far better than reticence, and, withal, would not have made the enemy a whit wiser than he is to-day. The public would have been reassured; there would not have been the bitter Press criticism; and the House would have been saved from making an exhibition which must have given the Germans furiously to laugh. Such an explanation made betimes would have helped to keep up the moral of our own people and would not have encouraged the enemy. On every possible ground, therefore, it ought to have been vouchsafed, but it is a deplorable fact that the growth of the bureaucratic system of government, which the war has, to a great extent, forced upon us has brought in its train certain evils of which by no means the least is a cynical contempt of public opinion and all it stands for.

At the best of times the official attitude is one of contempt for its masters, the public, but with the limited scope of bureaucracy before the war the evil was not, perhaps, so serious as it was irritating. Now, however, with Ministries and Government Departments multiplied until they are like unto the sands of the seashore, the evil has become so pronounced as to be almost intolerable and, unless it is checked betimes it is ultimately bound to lead to trouble. The British public has put up with a very great deal for the purpose of winning the war, and we do not doubt it is willing to forego even more of its cherished liberties if it is satisfied that this is necessary to the achievement of the national aims. But in return for this cheerful acquiescence in the curtailing of its liberties it expects to be taken into the confidence of the Government in so far as is possible without prejudicing the prosecution of the war. To persist in the attitude of the "high official" is simply playing with fire. It may or may not have occurred to this high and mighty personage that "who pays the piper calls the tune"—and it is the public, and not the "high official" who is paying the piper. Moreover, that type of official might also be usefully reminded that the piper who does not pipe according to the desires of his employer can be changed. There are quite good pipers to be had for the money the war is costing the British public.

**"To Remove Krupps."**

According to a Berne report, the Germans have become so alarmed at the great progress in aviation made by the Allies, and the possibility of their munition centres in Western Germany being destroyed, that they have begun to adopt measures for removing their war factories as far as possible from the western frontiers. It is said that even the great Krupp works at Essen are to be removed to as great an extent as possible during the winter to Posen, in East Prussia. The report adds that other centres of military industry are to be evacuated for the same reasons. We hope it is true. If it is, then there are at least two comforting reflections to be drawn from it. In the first place, it is a confession that the German military chiefs tacitly admit that they have no hope of being able to successfully resist the great Allied air offensive that is being prepared for next spring. At the very least it would imply that they are so doubtful of their ability for

resistance that they intend to take no chances of their principal centres being left open to an overwhelming attack from the air. In the second, it is impossible to move great manufacturing enterprises such as those of Western Germany without incurring a serious amount of disorganisation, with a correspondingly great curtailment of output. If the story is true, though these stories which come to us through neutral countries are by no means to be relied upon as a rule, the enemy will feel the pinch of a reduced output of munitions just at the time when the Allies should be capable of making their maximum effort.

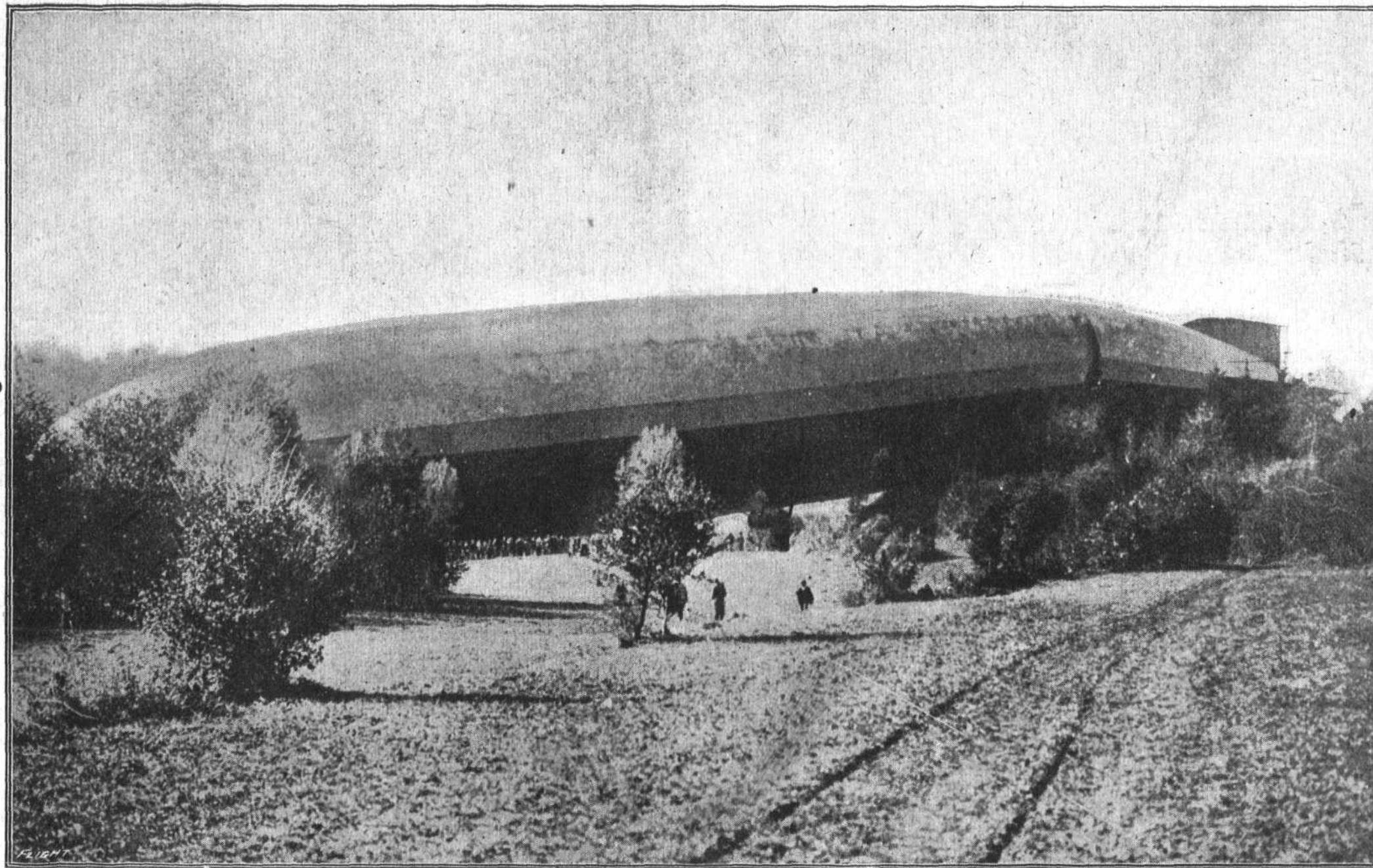
As we have said, it is not at all safe to accept these stories at their face value. In the particular case in point there seems to us to be weighty reasons why the enemy should prefer to organise the defences of his principal munitions area, and, having made them as perfect as possible, to take his chances at that. The greatest of these is the tremendous disorganisation to which we have already referred, and the certainty of which would appear to be worse than the possible risks he would incur by leaving them where they are. It is quite on the cards that the story is in fact a German *canard*, designed to make us think in the terms we have set out above, and it will be well to wait for corroboration before we accept it in its entirety. There seems in any case one moral to be drawn from it, and that is to bomb Essen and the rest of the munitions area at once, without waiting for the Spring.

**Sea and Air Power.**

The British public has got it firmly fixed in its mind that in the opening months of next year the air "will be black with Allied aeroplanes" and that we shall have established such an overwhelming superiority in the air that the aerial part of the war at least will be decided almost out of hand. For our own part, we are perfectly confident that something very nearly approaching this can be achieved, and will be if the Allies continue to put forth their maximum effort to attain and keep the complete mastery of the air. But it will require all our efforts, skilfully co-ordinated and directed.

We have come to regard the matter as settled, because, we say, the Allies have not only the whole of the manufacturing resources of Europe, outside the Central Alliance, at their disposal, but they have the enormous manufacturing and producing facilities of the United States to make the assurance doubly sure. It will not do to be too confident. Certainly Germany is making and will continue to make a desperate effort to keep on level terms. In these columns we outlined as recently as last week so much of the German aerial programme as has been allowed to leak through, and that is sufficiently formidable for us to regard with all seriousness. It is true that the resources of the Allies are infinitely greater than those of the enemy, but we must not lose sight of one very important factor in the situation. The two most important manufacturing units of the Western Alliance, Great Britain and the United States, are being compelled to divert a very large proportion of their manufacturing and producing facilities to the building of ships to replace those sunk by the German submarine campaign. Now, so far as we know the resources of the German ship-yards are not concentrated on the construction of mercantile tonnage, and they are thus left free to be employed on work of more immediate importance in the direct prosecution of the war. We do not at all lose sight of the





THE LONDON NIGHT RAIDERS.—Breaking up. The "L 49" lying across a small hollow at Bourbonne-les-Bains. Although apparently intact in the other two photographs, the airship would seem to be beginning to give way under the stress of the uneven support formed by the treetops. A break, it will be seen, has occurred near the tail of the ship. Note the top of the envelope thickly covered with snow.

fact that a great deal of these resources are absorbed by submarine construction and the necessity of maintaining the High Sea Fleet in a state of readiness for eventualities. But even allowing for these factors, it is beyond doubt that Germany is in a better position than ourselves to take advantage of her shipbuilding yards and their plant for aircraft construction. We do not think for a moment that she will, in spite of these advantages, succeed in holding us back from our objectives in 1918, provided we keep all the facts in mind and do not slack up on our efforts in any spirit of over-confidence. We are at the most critical time of preparation in the whole course of the war, and on the work of our factories during the coming winter depends our prospect of early victory. If only we keep that well before us, we have no fear for the result—but we cannot afford to slacken a single effort. Rather must we strain every nerve to increase production of aircraft to its very maximum.

**Officialdom and Aeroplanes.** A correspondent of the *Daily Mail*, who is evidently an aircraft constructor in a comparatively small way, and who signs himself—as well he might if his indictment is literally true—"Utterly Disgusted," discloses a deplorable condition of things due to the incompetence of the so-called inspectors employed to pass aeroplane construction. He says, after remarking that he is interested in a small firm employing about forty hands:

"A spar having been produced from the mill, the junior inspector walks round it, rule in hand, hoping to find some serious defect. Disappointed, he continues to walk round it for about two hours, and then discovers some trivial flaw, round which he draws a red-pencil line, and proceeds to report his discovery to the resident chief, who now appears on the scene. They consult together for another half an hour, when the foreman (who is waiting for the spar) asks if they have passed it, and is told they cannot take it upon themselves to do so, but must report it to their chief at headquarters. After three days this official arrives, bringing with him a wood expert, and the four proceed to hold a sort of coroner's inquest on the spar for another half-hour. The foreman then asks if it has been passed or condemned, and is told that they cannot take the responsibility of passing it, but will bring down Lieut. — to see it. After a few more days the lieutenant (who is a man who thoroughly understands aircraft) arrives, gives a general look at the article, and says, 'It is quite all right.' Result: Work held up for ten days, because the inspectors sent to the firm know absolutely nothing about timber or aircraft; any man who understood the business could have settled the matter in five minutes."

It seems to us that this letter requires a very serious answer from the Air Board. Either the charges it contains are true in substance and in fact, or they are not. We take it that if they are, the writer would have no objection to divulging his name and place of business to the Board, and it would then be up to the latter to enquire into the charges which, if substantiated, should lead to the instant dismissal of the incompetents. We agree that these men are probably doing their best, but such a "best" is no use to the country in its time of travail. They are the victims of a vicious system which has placed tinkers, tailors and doubtful play-actors in positions they are no more fitted to hold than our office-boy is to run the universe. If there are no really competent inspectors to be had, or if there are not enough to go round, then it would be far better to wash out the inspection business altogether and to trust to the integrity of our aircraft constructors than to hold up vital production at such a critical time as the present.

Alternatively, if the charges are untrue, or are

grossly exaggerated, then it is for the Board to say so in the most unequivocal terms and to proceed to the punishment of the person making them. If they cannot be substantiated, then an offence against the community has clearly been committed, since nothing is more likely to lead to a loss of confidence in the methods of the Government in carrying on the war, and a corresponding lowering of the public moral. That is the way the thing appeals to us. We wonder what the Air Board thinks of the disclosures—or, shall we say, the allegations as to the methods of its officials?

### The Furniture Trade and Aeroplane Work.

In a recent issue of the *Furniture Record* there appears a lucid, and we must say convincing, reply to the criticisms that have been levelled against the furniture trade on account of its alleged unwillingness to release men for aeroplane work. The *Record* points out that the Trade has special grounds for complaint, because while one department appeals to furniture manufacturers to release their men for aeroplane work, another tells them that the output of aeroplane woodwork exceeds the demand. Quite rightly the *Record* asks what is the position? It points out that Lord Cowdray, in a recent speech, said:—"The Air Board's demands for men and material are considered of vital importance, and are therefore being invariably met so far as it is ever possible for them to be. The result is that our output of aeroplanes and seaplanes has been enormously increased, and must be considered as highly satisfactory."

As the *Record* remarks, this does not square with the suggestion that men are so urgently needed as to justify the closing down of such important industries as the furniture trade. We agree with the argument that it is in the national interest that trade should be continued as far as possible. We do think that there is too much of a tendency in certain quarters to lose sight of the fact that the national revenue needs to be kept up, and in order to attain that end trade must be maintained, always subject, naturally, to the needs of the war. The cry for closing down this trade and that industry has been carried quite far enough, especially by a section of the Press which would apparently be well satisfied if everything were shut down—except its own immediate interests. It certainly seems to emerge that in this case there has been much cry and little enough wool. If we take the position to be as it is set forth by the *Furniture Record*—and there is no reason why we should not—it is quite clear that the trade has done all it has been asked to do in the way of releasing men for aeroplane work, and we are assured it is willing to do more when required, even to releasing its last man for the work of aeroplane construction.

There is another point raised by the *Record* which is worthy of remark, since it applies to all trades engaged in or concerned with the production of war material. "When," says this journal, "there is actually in sight a demand for more aeroplane woodwork the furniture manufacturers ought to be given the opportunity of doing it in their own factories, instead of being called upon to release their men to aeroplane works. The trade has the men and the machinery necessary for making wings, spare parts, &c., and properly organised there is no reason why



an output could not be secured to practically any extent required." There is a good deal in this to commend itself to the man of business, but unfortunately the idea of carrying out certain work in the manner suggested does not appeal to the mind of the National Service official, who is, we fear, much more concerned with being able to say that he has assisted to "comb out" a certain industry than with the question of working efficiency and maximum output.

**Airmen  
and  
Life  
Assurance.**

With reference to our article on this subject in our issue of the 4th of October, we publish in our correspondence column a letter which should prove of the greatest interest to those who, after the war, intend to pursue the art of aviation. It conveys a proposal for the insurance of pilots and observers which seems to us to be eminently fair under all the circumstances. As our correspondent points out, it will probably be difficult to get from the authorities the data sufficient to enable the assurance companies to arrive at a proper actuarial basis for the insurance of flying risks, though why there should be this difficulty after the war, when no harm can be done by the disclosure of the number of accidents in relation to miles flown, we confess we



**Escaped from the Turks.**

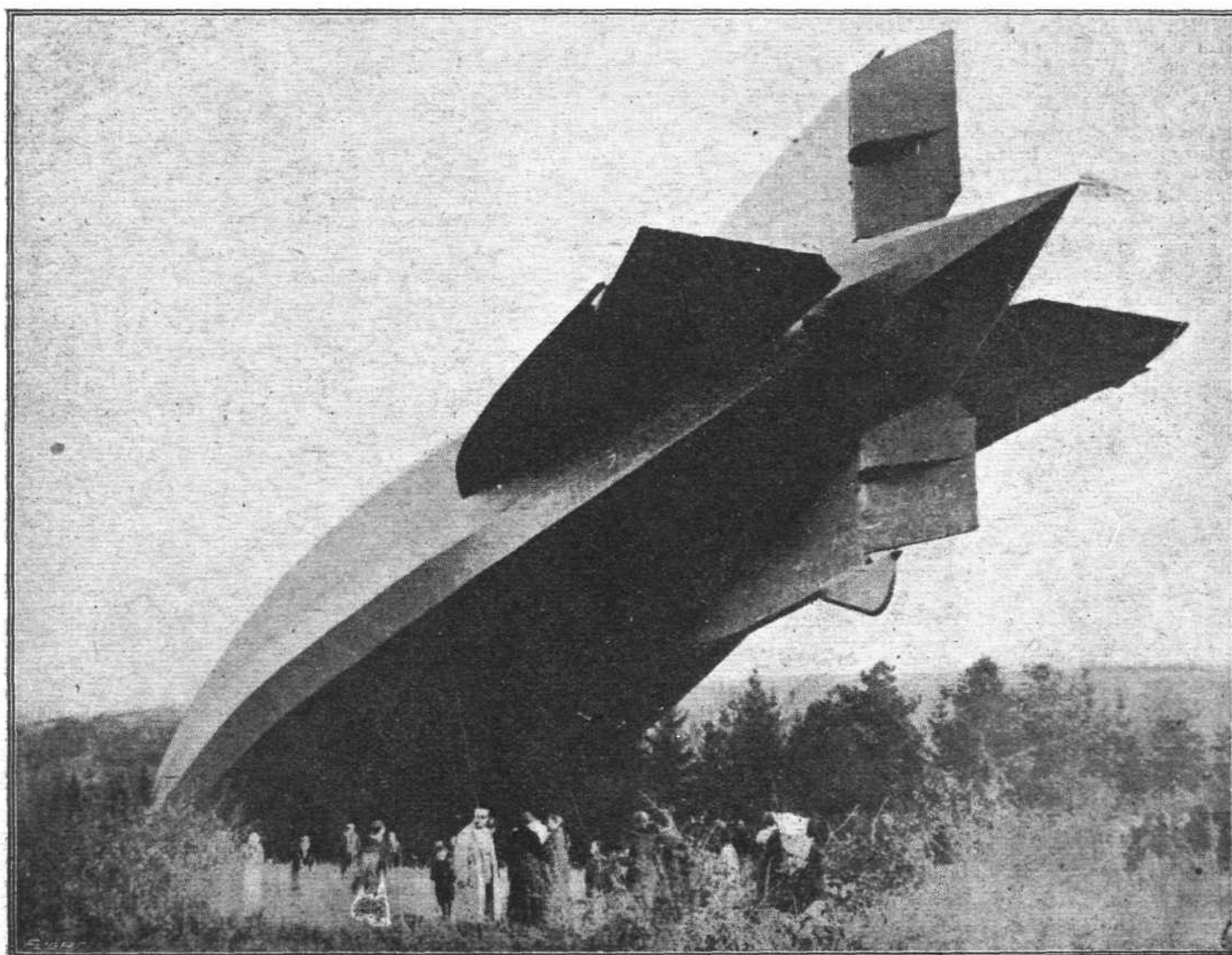
AGAIN has King George manifested his personal interest in matters concerning the escape from the German clutches of our officers, by receiving Captain R. J. Tipton, of the

cannot see. However, in default of this information, it is quite clear that the companies can only take the sporting chance and, in the meantime, build up their own figures.

On the face of it, the extra premium, for flying risks, of five guineas per cent. seems rather high but, as we have pointed out, the companies have nothing to go upon, and must, therefore, be on the safe side. We have not the slightest doubt that when the real figures become available and the companies are able to appreciate how really safe flying has become, they will find it possible to reduce these rates very materially. Moreover, it must be borne in mind that this is the first time flying risks have been insurable as a business proposition, as opposed to the gambling insurances which we know have been taken out occasionally in the past. We must always be prepared to pay for an experiment, which this offer frankly is, and, crude as it is for the moment, we welcome it as a long step in the right direction. Of course, this proposal does not cover the whole of the ground traversed in our original article, inasmuch as it does not include the insurance of war risks, though, as we pointed out then, these risks are not insurable on any known basis, and it would be too much to expect any company or group to entertain it.



Royal Flying Corps, one of the two British officers who recently escaped from a Turkish prison camp in Asia Minor, and receiving from him the narrative of his adventures. Captain Tipton belongs to a family resident at Birkenhead and well known at Liverpool.



**THE LONDON NIGHT RAIDERS.**—The stern and tail planes of the "L49." Note the curious tail skid arrangement. From the extreme point of the stern the German naval flag is still flying.

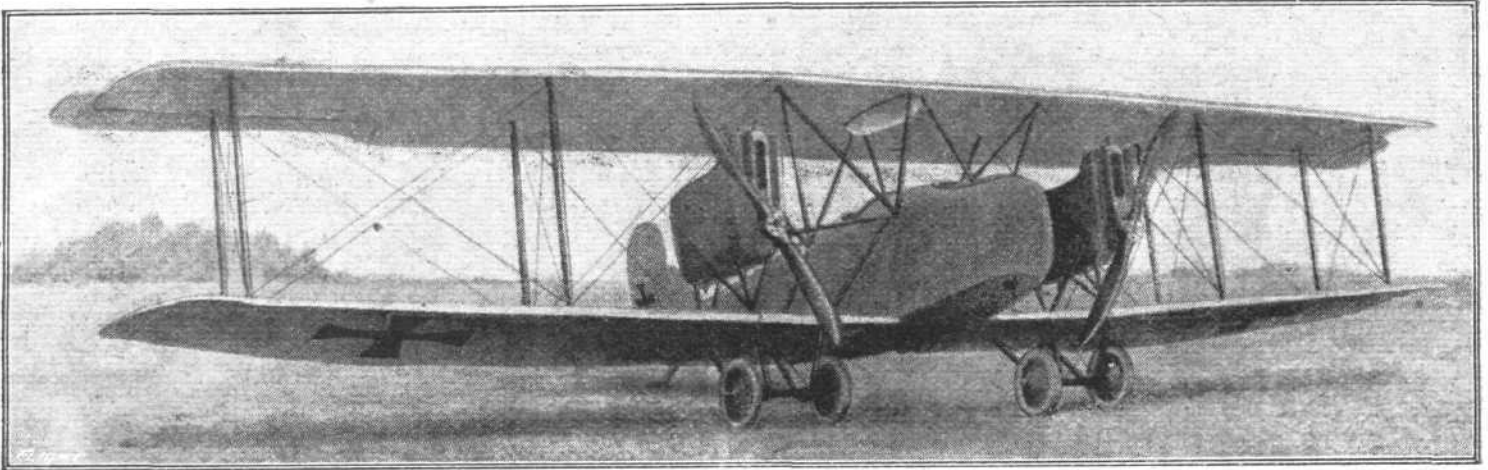
(French Official Photograph.)

## THE TWIN-ENGINE A.E.G. BOMBING BIPLANE.

IN the early days of the war it was the habit of the lay Press to use the name Taube generically for all military machines of German origin, and this caused some confusion in sometimes spreading the impression that the machines which figured in reports of fights in the air were of the Taube monoplane type, when, as a matter of fact, this type of aeroplane had long since been abandoned by the Germans. In the same manner there would at the present moment appear to be the possibility of causing some confusion by assigning

designers. Little was known of these machines, except that they were believed to be made almost entirely of steel.

The following particulars of the 1917 type A.E.G. bombers may be of interest, since, as already mentioned, there is a possibility of these being employed for raids on this country as well as the Gothas. The general arrangement will be clear from the accompanying perspective views and scale drawings, which latter should not be very far wrong in any dimension, although we cannot guarantee that they are absolutely correct.



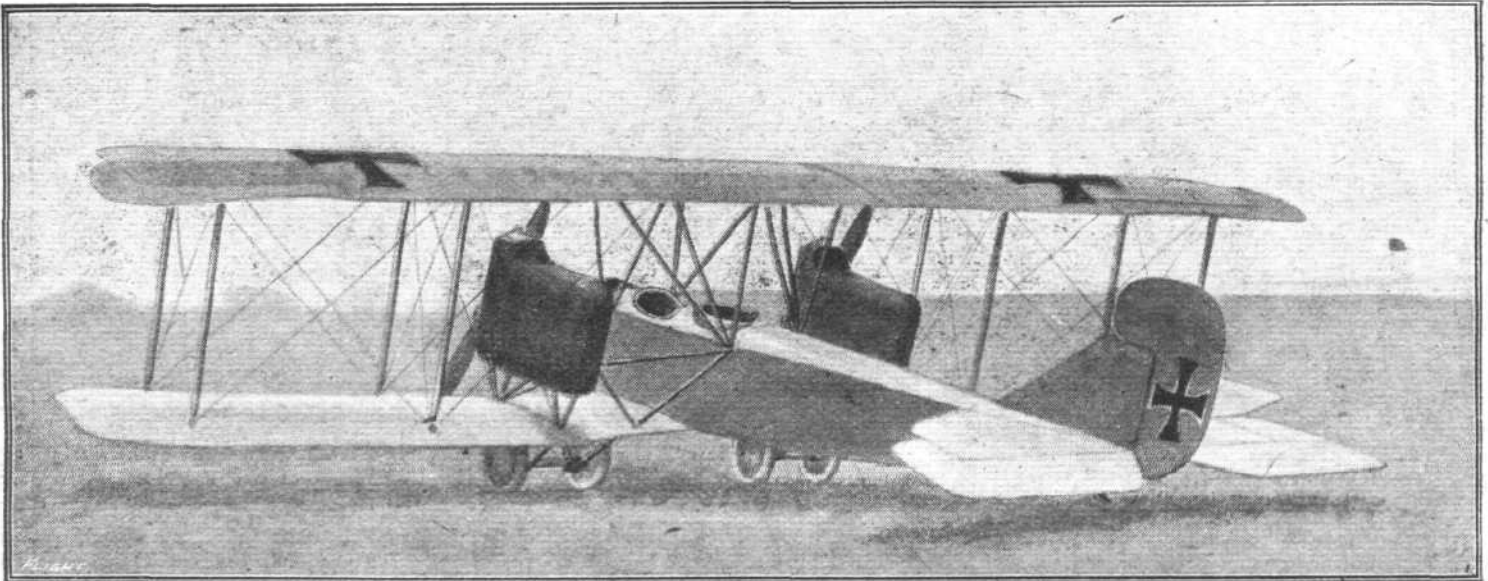
THE A.E.G. BOMBING BIPLANE.—Three-quarter front view.

to all German aeroplanes carrying out bombing raids on this country the designation "Gotha." As a matter of fact, it must not be assumed that these raiders are necessarily always of the Gotha type, as Germany possesses others which would in all probability be capable of raids on England, for which they with some amount of probability may be assumed to have been used. We are referring to the large twin-engine biplanes built by the Allgemeine Elektrizitäts Gesellschaft, and known as A.E.G. biplanes.

The A.E.G. firm was, perhaps, one of the first in Germany to turn its attention to machines of large dimensions, although not to such extent as the Capronis in Italy or the Handley-Pages in this country. One of the first A.E.G. twin-engine

They have been plotted with the aid of the perspective views, with which they tally fairly accurately.

Fundamentally the A.E.G. bomber resembles the Gotha biplanes, illustrated descriptions of which were published in our issues of July 12th and August 9th, 1917. In dimensions, however, the two machines differ considerably, the Gotha being somewhat larger. Also the A.E.G. has its two airscrews placed in front of the main planes, whereas in the Gotha they are "pusher" screws. As in the Gotha, the wings of the A.E.G. are swept back, and are also placed at a dihedral angle, which appears to be greater in the bottom than in the top plane. The span, it will be seen from the scale drawings, is the same for both planes, and amounts to 57 ft., while the



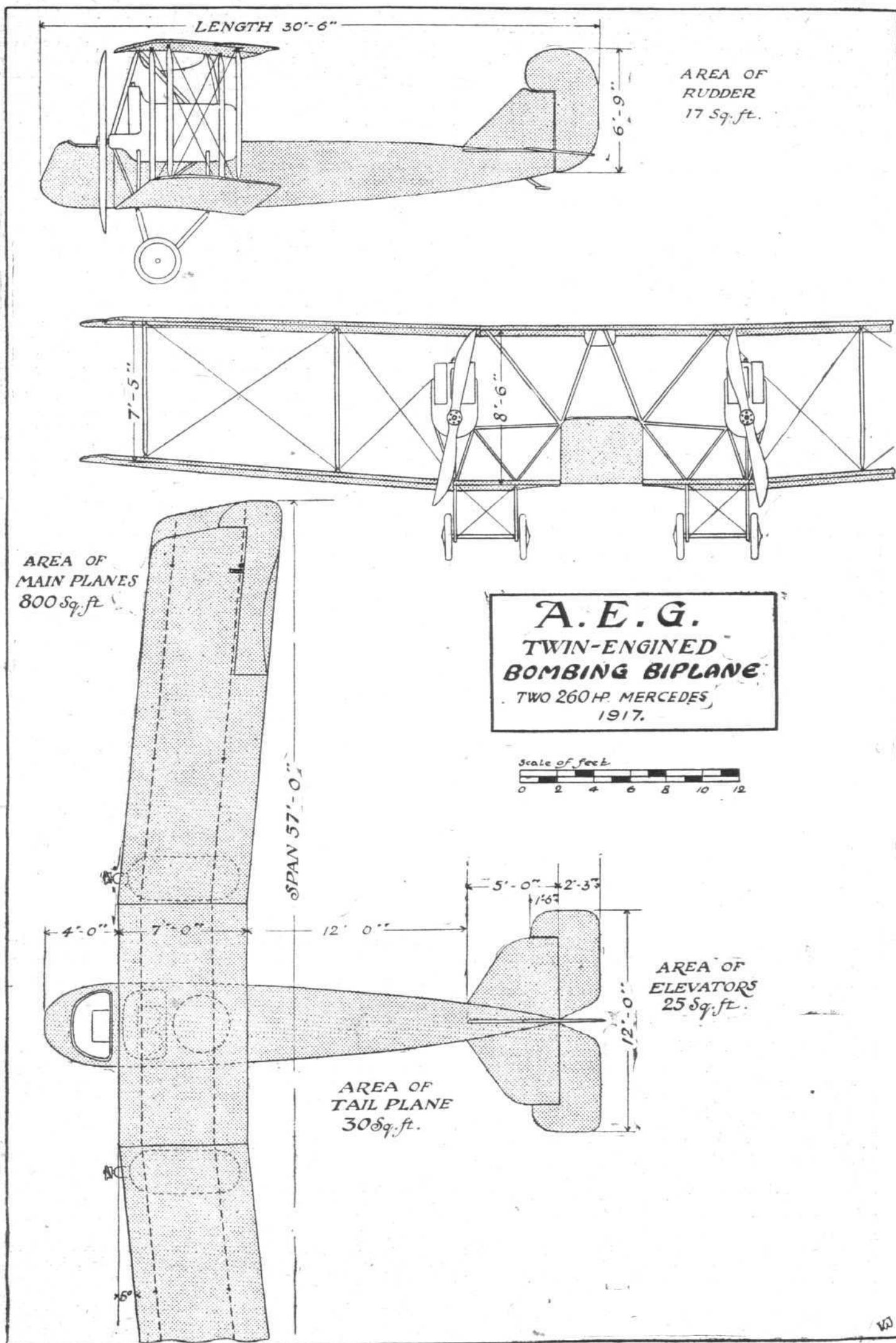
THE A.E.G. BOMBING BIPLANE.—Three-quarter rear view.

biplanes to become known to our pilots on the western front made its appearance during 1916, and was briefly described by M. Jean Lagorgette in our French contemporary *l'Aérophile* of August, 1916. This machine had a long conjoined fuselage providing accommodation for the pilot and gunners, while the two engines were placed on the wings, sufficiently far out for the two tractor screws to clear the nose of the fuselage. The planes, of which the upper was slightly longer than the lower, were set at a dihedral angle, and were also swept back in the manner beloved by German aeroplane

overall length is about 30 ft. The *ailerons*, which are of a peculiar shape, are fitted to the top plane only, and are operated by a crank lever working in a slot in the plane as shown in one of the accompanying sketches. This arrangement, which will be familiar to our readers from descriptions of Albatros biplanes, would appear to be in general favour with German designers, whereas it is rarely or never met with in Allied machines.

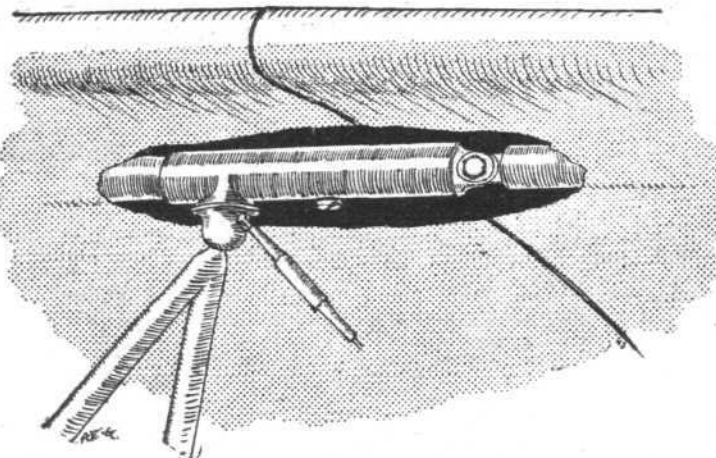
The tail planes, which are of the monoplane type, consist of fixed stabilising planes and a vertical fin, to which are





THE A.E.G. BOMBING BIPLANE.—Plan, front and side elevations to scale.

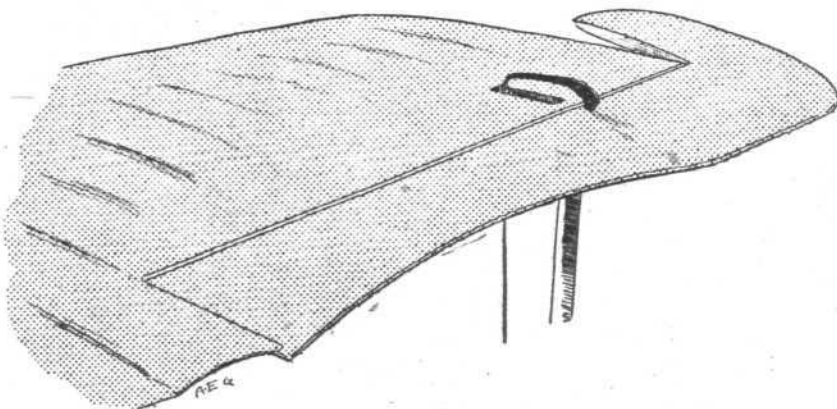
hinged the elevators and rudder respectively. Both elevators and rudder have forward projections in order to partly balance them, thus relieving the pilot of a certain amount of the strain of working the controls. A tail skid is fitted under the stern of the fuselage, and is sprung, not by means of rubber shock absorbers as is usually the case with our machines, but by means of coil springs. The same is the case with the landing chassis, where coil springs are also used instead of rubber. Whether this "indicates a shortage of rubber" in



THE A.E.G. BOMBING BIPLANE.—The attachment of the outer to the central sections of the top plane.

Germany, or whether, for machines of such large dimensions and heavy weight, it has been found more suitable, it is not possible to say.

As already mentioned, the material used in the construction is, with very few exceptions, steel, practically the only parts made of wood being the ribs of the main planes. The main spars are in the form of steel tubes, which is rather surprising in view of the fact that about the worst use to put a circular or tubular section to is to employ it as a beam laterally



THE A.E.G. BOMBING BIPLANE.—Sketch of one of the ailerons, showing the operating crank.

loaded, since much of the material of such a section will be situated at or near the neutral axis, where it is adding weight without contributing greatly towards the strength. Possibly the tube has been chosen, in this instance, for reasons connected with the manufacture rather than from considerations of structural suitability. The method of attaching the root of the main spar to the centre section of the top plane is shown in one of our sketches. The short length joining the centre section spar and root of wing appears to be turned from the solid, hollowed out at one end to receive the centre section spar, and having machined on the other a forked end to receive the root of the main spar. The strut socket, which resembles those usually found on German machines, is attached to it by welding.

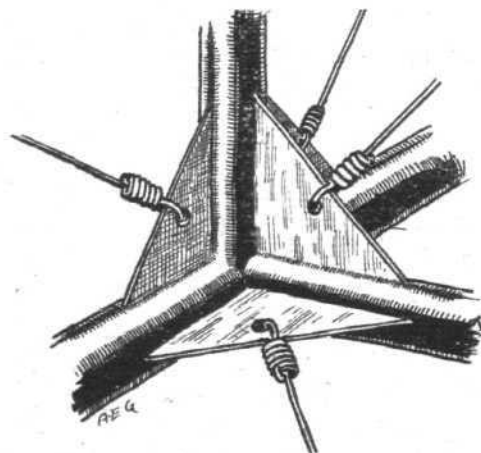
Like the rest of the machine, the fuselage of the A.E.G. bomber is built up of steel tubes, this material being used for longerons as well as for struts and cross members. These are connected by welding and the joints are stiffened and anchorage provided for the cross bracing wires by triangular pieces of sheet steel welded to longerons and struts. The arrangement will be better understood by reference to one of the accompanying sketches.

With regard to the accommodation for the occupants, this is divided into three divisions. In the front cockpit—in

the extreme nose of the body—is a seat for the bomber, who views the ground below and obtains his sights through a circular opening in the floor. On his right the bomber has a rack holding bombs; these are presumably not of a very heavy calibre. Under the centre of the body there is another bomb rack carrying the heavier projectiles. Near the inner ends of the lower plane there are fittings for an additional supply of bombs. The majority of the bombs, however, are not, so far as it is possible to ascertain, carried under the body and wings, but inside the body.

In the centre cockpit there are two seats, side by side, occupied by two pilots, or presumably by two pilot-gunners, one relieving the other at the controls during a long flight. The two seats, although placed side by side, do not extend the whole width of the body, but are placed a little to the left of the centre line, leaving room on the right-hand side for a bomb rack holding about 10 or 12 bombs. Behind the pilot's cockpit is that of the gunner, who operates a machine-gun mounted on a turntable, which allows of firing the gun laterally as well as upwards and to the rear. On the left-hand side in the gunner's cockpit there is another bomb rack carrying a similar store of bombs to that in the pilot's cockpit. In the floor of the bay to the rear of the gunner's cockpit there is a trap door, hinged along its rear edge. By lifting up this trap door, which may be held in its open position by a catch, the gunner is enabled to fire in a downward and rearward direction when being chased and attacked from behind. A small gun pivot mounted on the floor forms the support for the gun when firing through the trap door.

The engines—which are generally of the 260 h.p. Mercedes type—are placed one on each side on the centre section of the lower plane. They are enclosed in engine housings, with the radiator mounted near the nose. The main petrol tank is not carried in the engine housings, but in the pilot's cockpit, where it forms, as a matter of fact, the support for the two seats. A service petrol tank is fitted in each engine housing, these service tanks being replenished from the main tank by means of a pump. The mounting of the engines on the lower plane centre section is somewhat unusual, and may be best understood by an examination of the scale drawings and general views. It should, of course, be studied in con-



THE A.E.G. BOMBING BIPLANE.—The tubular fuselage construction.

junction with the undercarriage, since much of the at first sight cumbersome and unnecessary strutting is dependent upon the design of the chassis. This, it will be seen, has been so designed that the outer wheel on each side occurs directly underneath the corresponding engine, while the inner wheel is supported on another Vee from the lower plane. The object is plainly to let the inner wheels take part of the load of the central fuselage, but the manner of carrying out the idea does not strike one as particularly ingenious. The weight of the body is during a landing primarily supported on the inner ends of the centre section of the bottom plane. Struts are taken, it is true, to the top longerons of the body from the point of attachment of the inner chassis struts, but even so there is a considerable length of spar between this point and the sides of the body. Altogether the strutting of engines and undercarriages appears clumsy and complicated, and must, it would appear, present a great amount of head resistance. The two axles are slung from the apex of the Vees by coil springs, and not by rubber bands or cords. The speed is not known, but a rough estimate would appear to indicate as a reasonable figure about 90 m.p.h. The resistance appears to be excessive as regards certain portions, otherwise we should have estimated the speed to be slightly higher.



# The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

## Club House.

The following prices have been fixed for the present by the Committee:—

Bedroom (including Bath) ..	5s. each per night.
Breakfast .. .. .	2s. 6d.
House Luncheon .. .. .	2s. 6d.
House Dinner .. .. .	3s. 6d.

## Billiard Room.

The Billiard Room is now open for the use of the Members.

## THE FLYING SERVICES FUND.

administered by

## THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers and men.

Forms of application for assistance can be obtained from the Royal Aero Club, 3, Clifford Street, New Bond Street, London, W. 1.

## Subscriptions.

Total subscriptions received to Oct. 23rd, 1917..	£ 12,458 17 7
G. H. Mansfield, Managing Director of the Aircraft Supplies Co., Ltd., 125, Long Acre, W.C. 2; Proceeds of the Sale of copies of "Standard A.G.S. Parts for Aircraft," by Bernard Isaac (Ninth contribution, making a total of £35 1s. 4d.) .. .. .	2 12 6
Staff and Workers of Gwynnes, Ltd. (Forty-ninth contribution) .. .. .	9 7 8

Total, October 30th, 1917 .. .. 12,470 17 9

H. E. PERRIN, Secretary.

3, Clifford Street, New Bond Street, W. 1.

## HONOURS.

### Honours for the R.F.C.

It was announced in the *London Gazette* that the King has been pleased to confer the following rewards for gallantry and distinguished service in the field. The acts of gallantry for which the decorations have been awarded will be announced as early as practicable:—

#### *Distinguished Service Order.*

2nd Lieut. A. P. F. RHYS-DAVIS, M.C., R.F.C. (S.R.).

#### *Second Bar to the M.C.*

Lieut. L. M. BARLOW, M.C., R.F.C., Spec. Res. (M.C. gazetted Aug. 25th, 1917.) (1st Bar gazetted Oct. 16th, 1917.)

#### *Bar to the M.C.*

2nd Lieut. R. B. ASHCROFT, M.C., Notts and Derby R., Spec. Res. and R.F.C. (M.C. gazetted Sept. 26th, 1917.)  
Lieut. (Temp. Capt.) G. H. BOWMAN, M.C., R. War. R., Spec. Res. and R.F.C. (M.C. gazetted Sept. 17th, 1917.)  
2nd Lieut. (Temp. Lieut.) R. T. C. HOIDGE, M.C., R.G.A., Spec. Res. and R.F.C. (M.C. gazetted July 18th, 1917.)  
2nd Lieut. (Temp. Capt.) J. T. B. MCCUDDEN, M.C., Gen. List and R.F.C. (M.C. gazetted March 12th, 1917.)  
Lieut. A. E. McKEEVER, M.C., R.F.C., Spec. Res. (M.C. gazetted Sept. 17th, 1917.)

2nd Lieut. K. R. PARK, M.C., R.F.A., R.F.C. (M.C. gazetted Sept. 26th, 1917.)

2nd Lieut. A. C. YOUNDALE, M.C., R.F.C., Spec. Res. (M.C. gazetted Sept. 26th, 1917.)

#### *Military Cross.*

Temp. 2nd Lieut. R. H. AYRE, Gen. List and R.F.C.

2nd Lieut. (Temp. Capt.) C. A. BREWSTER-YOSKE, Gen. List and R.F.C.

2nd Lieut. (Temp. Lieut.) J. H. BROADWAY, Dorset (S.R.), att'd. R.F.C.

Temp. 2nd Lieut. G. W. FERGUSON, Gen. List and R.F.C.

Lieut. A. G. GOULDING, Can. Inf. and R.F.C.

2nd Lieut. (Temp. Capt.) A. GRAY, A. and S. Hrs. and R.F.C.

Temp. 2nd Lieut. R. F. HILL, Gen. List and R.F.C.

2nd Lieut. C. F. HORSLEY, Norfolk and R.F.C.

Temp. Capt. J. LEACROFT, Gen. List and R.F.C.

Temp. Lieut. H. G. E. LUCHFORD, Gen. List and R.F.C.

2nd Lieut. (Temp. Lieut.) F. L. MCCREARY, S. Lancs. and R.F.C.

Temp. Lieut. T. T. S. MENENDEZ, Gen. List and R.F.C.

Lieut. (Temp. Capt.) M. D. G. SCOTT, N. Lancs. (S.R.) and R.F.C.

Capt. W. SMITH, London and R.F.C.

2nd Lieut. C. A. STEVENS, W. Riding and R.F.C.

2nd Lieut. R. WINNICOTT, Devon and R.F.C.



## FATAL ACCIDENTS.

At the inquest on October 27th on Lieut. C. W. Homer, R.F.C., and Lieut. D. McGill, R.F.C., who were killed in Norfolk on the morning of that day whilst flying, the jury returned a verdict of accidental death in each case. It was stated that Lieut. McGill was making his first flight with Lieut. Homer, who was fully qualified and an excellent pilot. Capt. Langford George Davies, R.A.M.C., said he saw the machine coming down rather steeply, and when about 300 ft. up the right wing of the machine seemed to bend and the machine disappear beyond the rise. He went to the scene, and found both men were dead. They must have been killed instantaneously. Another witness thought the machine got into a spinning nose-dive.

At Minster, Isle of Thanet, on October 27th, an inquest was held on Flight Lieut. A. F. Brandon, R.N.A.S., who was killed by a collision in the air on the previous evening. Evidence was given that Lieut. Brandon had been acting as instructor in a formation flight in the afternoon. Later he went up alone to test engines. When 500 ft. up another machine descending to the aerodrome struck his right wing from above, sending him crashing to earth. A verdict of death by misadventure was returned. Lieut. Brandon, who was

a skilled aviator, accounted for one of two Gothas brought down during a recent air raid on the south-east coast.

The Doncaster Coroner held an inquest on October 27th on 2nd Lieut. L. Fleet, R.F.C. The officer was flying near Doncaster when the machine suddenly nose-dived to the ground. Death was instantaneous. The jury returned at verdict of accidental death.

An aeroplane flying over Romney Marshes, between Rye and Brookland, in Kent, was observed to break down on October 24th. The occupant, whose name was given as Wood, fell out as the machine collapsed, and was killed.

An inquest was held on the South-East Coast on October 29th, on Sec. Lieut. J. R. Keeble and Sec. Lieut. L. Hudson, who were killed in an aeroplane accident on October 28th. According to the evidence the machine rose to a height of about 400 ft., and in turning developed a spin, nose-dived to earth, and broke into flames. Both occupants were dead when extricated. A witness expressed the opinion that if the pilot had had another 25 ft. to fall he would have pulled the machine out of the spin. A verdict of "Accidental death" was returned.

## THE ROLL OF HONOUR.

### Reported by the Admiralty:—

#### Previously Missing, now reported Killed.

Flight Sub-Lieut. John S. de Wilde, R.N.

#### Accidentally Killed.

Prob. Flight Officer J. P. Crawford-Wood, R.N.  
Prob. Observation Officer K. L. C. Oxley, R.N.

#### Wounded.

Flight Sub-Lieut. W. N. Fox, R.N.  
Flight Commander A. M. Shook, D.S.O., R.N.

#### Slightly Wounded.

Observer Sub-Lieut. W. R. Stennett, R.N.

#### Accidentally Injured.

Flight Sub-Lieut. H. W. M. Cumming, R.N.  
Flight Commander F. H. M. Maynard, R.N.  
Prob. Flight Officer Bertram E. Sugars, R.N.

#### Missing.

Flight Sub-Lieut. E. G. A. Eyre, R.N.  
Flight Sub-Lieut. John E. C. Hough, R.N.

### Previously Missing, now reported Prisoners of War.

Flight Sub-Lieut. Joseph C. Akester, R.N.  
Flight Sub-Lieut. Edgar Foster, R.N.

#### Correction: Presumed Killed.

Act. Flight Commander C. A. Eyre, R.N.—The rank of this Officer should be as now described, and *not* as previously reported.

### Reported by the War Office:—

#### Killed.

2nd Lieut. J. P. F. Adams, Dur. L.I., attd. R.F.C.  
Lieut. H. Cook Sask, attd. R.F.C.  
2nd Lieut. J. H. Cremonini, R.F.C.  
2nd Lieut. S. P. Heald, R.F.C.  
2nd Lieut. N. D. Macpherson, R.F.C.  
2nd Lieut. G. S. Sawyer, I.A.R.O., attd. R.F.C.  
2nd Lieut. G. N. Whitehead, R.F.C.

#### Previously Missing, now reported Killed.

Lieut. P. W. Battersby, Yeo., attd. R.F.C.  
Capt. C. A. Brooks, Wilts., attd. R.F.C.  
2nd Lieut. H. C. Farres, K.R.R.C., attd. R.F.C.  
2nd Lieut. A. J. Pearson, M.C., R.F.C.  
Lieut. G. E. Mall-Smith, R.F.C.  
2nd Lieut. F. G. Truscott, M.C., Suff., attd. R.F.C.

#### Died of Wounds.

2nd Lieut. W. A. Campbell, W. Yorks, attd. R.F.C.  
Lieut. F. C. E. Clarke, Worc., attd. R.F.C.  
2nd Lieut. C. C. Gadsden, W. Surrey, attd. R.F.C.  
Lieut. N. McLeod, Can. F.A., attd. R.F.C.  
Lieut. P. Mighell, R.F.C.  
Lieut. H. Olivier, R.F.C.  
Lieut. S. J. Veacock, Hamps., attd. R.F.C.  
4646 1st Air-Mech. J. T. Gadd, R.F.C.

### Previously Missing, now reported Died of Wounds as Prisoner in German hands.

Lieut. P. W. Murray, Dur. L.I., attd. R.F.C.

#### Previously reported Died, now reported Died of Wounds.

19737 1st Air-Mech. J. W. Payne, R.F.C.

#### Died.

2nd Lieut. H. E. Jones, R.F.C.  
6180 1st Air-Mech. S. Creber, R.F.C.  
18772 1st Air-Mech. W. E. Moon, R.F.C.

### Previously Missing, now reported Died as Prisoner in Turkish hands.

7350 2nd Air-Mech. D. Ponting, R.F.C.

#### Accidentally Killed.

Lieut. W. C. Thompson, Manit., attd. R.F.C.

#### Wounded.

Lieut. J. E. Bennett, Yeo., attd. R.F.C.  
2nd Lieut. J. F. Bremner, R.F.C.  
Lieut. E. F. Crossland, R.F.C.  
2nd Lieut. G. L. Dore, R.F.C.  
2nd Lieut. H. H. Dowse, A.S.C., attd. R.F.C.  
2nd Lieut. S. E. Dreschfield, R.F.C.  
Lieut. J. Duncan, R.F.A., attd. R.F.C.  
Lieut. J. T. Gartside, R.F.C.

2nd Lieut. F. D. Grant, R.F.C.  
Lieut. F. H. Hiscock, R.F.C.  
Lieut. P. W. Malthouse, A.P.D., attd. R.F.C.  
Capt. J. H. C. Minchin, Sco. Rif., attd. R.F.C.  
2nd Lieut. G. C. Vandyk, R.F.A., attd. R.F.C.  
2nd Lieut. F. E. White, R.F.C.  
577 D. V. Morrison, Aus. F.C.  
767 E. E. Ogier, Aus. F.C.

Except where otherwise stated the following are mechanics in the R.F.C., the figure in brackets indicating their rating:—

44988 (2nd) F. A. Laycock; 94315 (2nd) F. Scott; 83111 (2nd) D. Handyside; 61121 (2nd) W. Skidmore; 8234 (2nd) A. Newberry, R.F.C., attd. R.F.A.; 523 Corpl. E. F. Kimpton; 62217 (2nd) M. Parsons, R.F.C.; 9905 (1st) B. E. Cox, R.F.C., attd. R.G.A.; 77363 (2nd) B. Fergusson, R.F.C., attd. R.G.A.; 44740 (2nd) W. J. Heddon, R.F.C., attd. R.G.A.; 66470 (2nd) H. Blanksby; 54268 (1st) L. Drewitt; 65034 (2nd) N. H. Fox; 8634 (1st) J. G. F. Moore; 2086 Sergt. W. Roberts; 49874 (2nd) A. E. Roberts; 55205 (2nd) A. T. Poulton; P/382428 (2nd) W. Walker; 8863 (2nd) R. T. Wagstaffe, R.F.C., attd. R.F.A.

### Previously Missing, now reported Wounded and Prisoner in German hands.

2nd Lieut. D. P. FitzG. Uniacke, R. Ir. Rif., attd. R.F.C.

#### Missing.

2nd Lieut. A. A. Allen, R.F.C.  
Lieut. S. H. Allen, Cent. Ont., attd. R.F.C.  
2nd Lieut. G. W. Armstrong, R.F.C.  
Lieut. J. M. Atkinson, A.S.C., attd. R.F.C.  
2nd Lieut. B. F. Braithwaite, R.F.C.  
2nd Lieut. R. J. P. Cobb, D. of Well., attd. R.F.C.  
Capt. H. B. Coomber, Manch. R., attd. R.F.C.  
2nd Lieut. G. W. Forbes, R.F.C.  
2nd Lieut. E. L. Fosse, R. War. R., attd. R.F.C.  
2nd Lieut. J. C. Garrett, R.F.C.  
2nd Lieut. F. W. Gibbes, R.F.C.  
Lieut. J. D. Gilbert, Yeo., attd. R.F.C.  
2nd Lieut. R. S. Gilbert, R.F.C.  
Lieut. L. H. Gould, Brit. Col., attd. R.F.C.  
2nd Lieut. H. R. Hicks, R.F.C.  
2nd Lieut. A. D. Lennox, R. Sco. Fus., attd. R.F.C.  
2nd Lieut. R. W. B. Matthewson, R.F.C.  
2nd Lieut. W. G. Morgan, R.F.C.  
Lieut. A. W. Nasmyth, Alta., attd. R.F.C.  
2nd Lieut. M. Newcomb, R.F.C.  
2nd Lieut. P. C. Norton, R.F.C.  
2nd Lieut. F. J. Ortweiler, R.F.C.  
Capt. H. Patch, S. Lan. R., attd. R.F.C.  
2nd Lieut. H. Pughe-Evans, Welsh R., attd. R.F.C.  
2nd Lieut. J. H. K. Salter, R.F.C.  
2nd Lieut. E. Scholtz, R.F.C.  
2nd Lieut. G. C. E. Smithett, North'n R., attd. R.F.C.  
Lieut. C. Smythe, M.C., Can. F.A., attd. R.F.C.  
2nd Lieut. S. E. Stanley, R.F.C.  
2nd Lieut. F. W. Talbot, Worc. R., attd. R.F.C.  
2nd Lieut. A. E. Turvey, R.F.C.  
2nd Lieut. W. W. Vick, R.F.C.  
2nd Lieut. A. A. Ward, R.F.A., attd. R.F.C.  
2nd Lieut. H. S. Wellby, Lond., attd. R.F.C.  
2nd Lieut. K. H. Willard, Y. and L. R., attd. R.F.C.  
2nd Lieut. W. H. Winter, R.W. Surr. R., attd. R.F.C.  
2nd Lieut. H. C. Wookey, Glouc., attd. R.F.C.  
19130 Sergt. J. Bancroft, R.F.C.  
1391 Corpl. L. S. Goss, R.F.C.  
46448 Acting Corpl. O. W. A. Grant, R.F.C.  
88285 Sergt. G. E. Lambeth, R.F.C.  
9253 Corpl. E. Marshall, R.F.C.

### Prisoners of War in German hands.

2nd Lieut. G. R. Baynton, R.F.C.  
2nd Lieut. E. A. Cooke, R.F.C.  
Capt. A. C. Hatfield, R.F.C.  
2nd Lieut. C. N. L. Lomas, R.F.C.  
2nd Lieut. R. R. McGregor, R. Scots, attd. R.F.C.  
2nd Lieut. C. H. F. Nobbs, R.F.C.  
2nd Lieut. G. P. Robertson, R.F.C.  
2nd Lieut. H. Rothery, R.F.C.  
2nd Lieut. C. E. Stuart, R.F.C.  
2nd Lieut. C. A. Sutcliffe, R.F.C.  
87650 Sergt. H. S. Foulsham, R.F.C.  
46209 2nd Air-Mech. W. Hawkins, R.F.C.  
58038 2nd Air-Mech. T. H. Taylor, R.F.C.



## THE THANKS OF THE NATION.

In the House of Lords, in his speech introducing the very acceptable resolution of thanks of the Nation to the Navy, Army and Mercantile Marine, Lord Curzon, taking the Air Services in their turn, said:—

"When we are dealing with the Royal Flying Corps or either of the services, I deliberately say that nowhere in this country has the spirit of knight errantry been more conspicuously shown. When in August, 1914, 100 officers and 66 machines made their way to France, who could have foreseen that they would have developed into a great fleet of thousands of machines and tens of thousands of men? On the Western front in the first nine months of 1917 the men of the Royal Flying Corps brought down 876 enemy machines, they drove 759 out of action, 52 were brought down by anti-aircraft gunners: thousands of tons of explosive were dropped on aerodromes, bridges, railways, lines of communication, and even on marching regiments. Apart from offensive operations and activities of the Air Service, they are the eyes of the Army in the field. Then we must not forget the airmen at home, who have shattered the enemy's Zeppelins, and by their skill and bravery on many occasions have brought those great gas-bags in flames to the ground. I sometimes think when Gothas are shrieking over London, and when the civil population are cowering in their cellars, we might give a thought to those brave men who are riding in the darkness above and risking their lives to save us from destruction. I include in the same tribute the officers and men of the Naval Air Service. There is no distinction between the two Services. At the beginning of the war the personnel of the Naval Air Service was 800, and now it is 42,000. Its fleet in August, 1914, consisted of seven airships, thirty aeroplanes and thirty-four seaplanes; whilst the number is now many thousands. The most

effective branch of the Service has been the Naval squadron of Dunkirk, from whence it has bombed aerodromes and has diminished and at times stopped the aerial invasion of our country.

"These airmen have been in evidence in every theatre. They have flown over Damascus, dropped bombs on Beyrout, destroyed buildings in Constantinople; and their flight to the Lake of Constance in the early part of the war and destruction of sheds there will be remembered."

In his speech upon the same subject, in the House of Commons, Mr. Lloyd George was equally generous, and although wishing not to appear invidious in singling out any one of the various arms of the Service, he said:—

"But, amongst all these, I may be permitted to mention one arm of the Service which has appeared for the first time in this great war—I mean the Air Service. I am sure the House would like special mention to be made of our Air Service. The heavens are their battlefield; they are the cavalry of the clouds. High above the squalor and the mud, so high in the firmament that they are not visible from earth, they fight out the eternal issues of right and wrong. They are struggling there day, yea, and by night, in that titanic conflict between the great forces of light and of darkness. They fight the foe high up and they fight him low down; they skim like armed swallows along the front, taking men, in their flights, armed with rifle and with machine gun. They scatter infantry on the march; they destroy convoys; they scatter dismay. Every flight is a romance; every record is an epic. They are the knighthood of this war, without fear and without reproach. They recall the old legends of chivalry, not merely by daring individually, but by the nobility of their spirit, and, amongst the multitudes of heroes, let us think of the chivalry of the air."

## CORRESPONDENCE.

### Re Airmen and Life Assurance.

[1951] I have read the letter from "Squad-Commander" and the "Editorial" in your issue of October 4th.

I am afraid there will be some difficulty to obtain the Government statistics of flying accidents so as to enable any company to place the business on an actuarial basis, and it is, therefore, necessary for some company to be enterprising enough to quote rates and so build up their own experience from accepted cases.

In these days when everything is insurable it seemed to me that there must be some office sporting enough to take the risk, and I have approached one of the leading companies on the subject, and am pleased to say that they are prepared to accept proposals subject to satisfactory particulars on the following scheme, viz.:—

1. The policy to be payable at the end of twenty years or at previous death.
2. Every five years the declared bonus to be added to the policy.

The rates chargeable for every £100 insurance will be:—

	For age 20.	For age 25.
	£ s. d.	£ s. d.
	4 17 3 ..	4 18 0
Plus—for Flying risks in this country .. ..	5 5 0 ..	5 5 0
	£10 2 3 ..	£10 3 0

excluding war risks.

This scheme is only open to pilots and observers who have obtained their certificates.

In the event of flying being discontinued, the additional rate will be no longer chargeable.

If any of your readers are interested, and will communicate with the undersigned at 149, Leadenhall Street, he will place them in communication with the company.

W. S. COLES.

149, Leadenhall Street, London, E.C. 3.  
October 24th, 1917.

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### To Readers—One and All.

THE Editor of "FLIGHT" will at all times be pleased to consider original articles (illustrated or otherwise) on subjects directly or indirectly allied with aviation. All articles accepted will be paid for; a high literary standard of writing is not essential; it is the facts which matter. Practical explanatory articles are most acceptable. Diagrams and similar illustrations need only be rough sketches if necessary.

### "X" AIRCRAFT RAIDS.

In view of the decision of the Government not to allow details of places visited by enemy aircraft to be published, we are, as before, giving to each one an index number. Eventually, when details are available, we shall give the respective information under these index numbers, which will facilitate easy reference to each particular raid.

#### "X" 81 Raid (October 29th).

The following *communiqués* were issued by the Field-Marshal Commanding Home Forces:—

"October 29th.

"Hostile aeroplanes attempted to raid the South-East counties to-night. Our aeroplanes went up and guns and lights were in action. No hostile aeroplane succeeded in passing the outer defences."

"October 30th.

"No casualties or damage were caused by last night's raid. The enemy machines were unable to penetrate far inland owing to the activity of our own aircraft, which went up to meet them in spite of the rising gale.

All our machines landed safely."

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### Skilled Men Wanted for the R.F.C.

THE Royal Flying Corps, the Royal Artillery, and other Technical Corps of the Army are still in urgent need of Artificers, and the Ministry of Munitions is appealing for volunteers. The Ministry is returning to the Colours many soldiers formerly released for munitions work, who possess the necessary qualifications, and the Army Council is making sure that skilled men in line regiments will be transferred to technical units, and the ability of men posted to technical units utilised to the fullest extent possible. But the demand for fitters, turners, coppersmiths, acetylene welders, planing and other machinists, riveters, mechanical engineering draughtsmen, electricians, boilermakers, and caulkers continues to exceed the supply; and they are now urged to enrol at once for service by going to the nearest Employment Exchange and signing Form A.A.4.

The names of those enrolling who can be spared from their present work will be submitted to the new National Service Recruiting Department with a view to a trade test before being posted to some Technical Corps. The technical unit to which a man may be assigned is determined by the trade test. Fitters of special ability may be granted the rank of Fitter Staff Sergeant soon after enlistment, and for smart, intelligent men there are good chances of promotion to the higher non-commissioned ranks.

In the present phase of the war nothing is more necessary than that the technical units of the Army should be made increasingly efficient to maintain in the field an ample supply of aeroplanes, guns, and tanks.

## IN THE HANDS OF THE ENEMY.

THE following is an official list, published in Germany, of British machines which the Germans claim fell into their hands during the month of August, 1917:—

### 34 Sopwiths. *Single-seaters.*

- No. B. 2304. Lieut. Harold Ellam, wounded.
- No. P.C. 125. Rhone motor 2941. Occupant unknown.
- No. A. 6201. S. J. Oliver, dead.
- No. A. 8923. Capt. Fleming.
- No. B. 357. Capt. H. E. Read, dead.
- No. 1058. Occupant prisoner.
- No. unknown. Lieut. Douglas Tinnay, prisoner.
- No. unknown. M. H. Baron, dead.
- No. B. 1732. Occupant prisoner.
- No. B. 368. Occupant dead.
- No. F. 8 2491. Occupant dead.
- No. S.E. 5. Occupant dead.
- No. B. 517. Occupant wounded.
- No. B. 3938. Occupant dead.
- No. B. 2307. Lieut. Gillespie, prisoner.
- No. A. 9212. S. de Lisle Bush, dead.
- No. unknown. Ford Stuart Strathy, dead.
- No. B. 3873. Capt. Thompson, 70 Squadron, prisoner.

In the case of eight Sopwith single-seaters the numbers of the machines and the name of the occupants could not be ascertained.

### *Two-seaters.*

- No. A. 1079. Machine Gunner Attison, Lieut. Snelgrove, both dead.
- Rhone motor, No. 1375. Occupants unknown.
- No. A. 8336. F. E. Winsor, H. F. Young, both dead.

In the case of two Sopwith two-seaters and three Sopwith triplanes, the numbers of the machines and the names of the occupants could not be ascertained.

### 14 Nieuports. *Single-seaters.*

- No. A. 6618. Lieut. Henderson, 1st Squadron, prisoner.
- No. B. 1518. Lieut. C. G. Gruy, prisoner.
- No. 412. Capt. William, dead.
- No. B. 3482. Lieut. L. Read, prisoner.
- No. A. 6771. Lieut. Walter Cullen, prisoner.
- No. A. 6701. Occupant wounded.
- No. E. 1683. Occupant unknown.
- No. 532. Occupant unknown.
- No. unknown. Capt. A. B. Jarvis, dead.
- No. B. 1557. Occupant dead.
- No. 6701. Lieut. W. B. Styles, prisoner.

In the case of three Nieuport single-seaters the numbers of the machines and the name of the occupants were not ascertained.

### 11 B.E.'s *Single-seaters.*

- No. 6547. Lieut. C. A. Bean.
- No. 14735. Lieut. Wilkinson, wounded.

In the case of one B.E. single-seater, the number of the machine and the name of the occupant could not be ascertained.

### *Two-seaters.*

- No. 7140. Lieut. R. S. Phelan, prisoner. Lieut. Karl Macfarlane, dead.
- No. A. 7147. Lieut. Jeffery Rosa, Machine Gunner Bassenger, both prisoners.
- No. A. 7171. Lieut. Dultson, dead; Lieut. Hart-Dravies, seriously wounded.
- No. A. 7522. Lieut. C. Adamson, F. Smith, both wounded.
- No. 7177. 2nd Lieut. R. N. W. Jeff, Lieut. G. Colledge, both prisoners.

In the case of three B.E. two-seaters, the numbers of the machines and the name of the occupants could not be ascertained.



### Baron von Richthofen Married.

THE rumour with regard to the death of Baron von Richthofen would appear to be nothing more than a rumour, as news reached Amsterdam on October 22nd that the Baron, on long leave, had, on the previous day, married Fraülein von Minkwitz, the millionaire heiress daughter of the Duke of Saxe-Coburg's Master-of-Horse. The Kaiser is said to have appointed Richthofen his "Equerry-Airman," and it is probable that the Baron will in future devote himself entirely to the training of fighting squadrons.

### To Prevent Hun Signalling in Norway.

THE Christiania State Council has prohibited the unauthorised use of flags, semaphores, lights, fireworks, or other means suitable as signals under such circumstances

### 10 Spads. *Single-seaters.*

- No. 3525. Capt. Colliers, prisoner.
- No. unknown. Lieut. Michels, dead.
- No. B. 347. Lieut. Thompson, prisoner.
- No. F. 1639. 2nd Lieut. Henry Vabatell, prisoner.
- No. A. 6634. Lieut. Shipwith.
- No. unknown. Lieut. Finney, 23rd Squadron, wounded.

In the case of four Spad single-seaters, the numbers of the machines and the name of the occupants could not be ascertained.

### 3 Bristol Fighters. *Two-seaters.*

- No. A. 6169. Capt. Chembares, dead; Sergt. W. Richmann, wounded.
- A Rolls-Royce motor, No. 213. Lieut. E. A. Hunter Word, both dead (*sic*).
- No. A. 7204. 2nd Lieut. H. G. Tambling; Sergt. W. Organ, both prisoners.

### 11 Martinsydes. *Single-seaters.*

- No. A. 6261. Occupant dead.
- No. 7276. Occupant prisoner.
- No. A. 3992. 2nd Lieut. Cox, D.P., dead.
- No. A. 6529. Capt. Smith, dead.
- No. A. 3978. Lieut. Skinner, 27th Squadron, prisoner.

In the case of four Martinsyde single-seaters, the numbers of the machines and the name of the occupants could not be ascertained.

### *Two-seaters.*

- Rolls-Royce motor No. 327528. Lieut. Norman Field, 2nd Lieut. P. L. McGavin, both dead.

In the case of one Martinsyde two-seater, the number of the machine and the names of the occupants could not be ascertained.

### 8 R.E. *Two-seaters.*

- No. 3593. Lieut. Mallons, prisoner; other occupant wounded.
- No. A. 3535. Capt. Remberton, dead; Lieut. Mammers-Smith, wounded.
- No. 4364. Lieut. M. T. Wright, Lieut. A. E. S. Barlow, both prisoners.

In the case of five R.E. two-seaters, the number of the machines and the names of the occupants could not be ascertained.

### 7 De Havilland Scouts.

- No. 1228. Occupants dead.
- No. A. 7529. Lieut. A. N. Bastow; Lieut. Hutchimon, 55th Squadron, prisoners.
- No. 2211. Occupants dead.
- No. A. 7555. Lieut. W. B. Hutcheson, prisoner, and Lieut. T. E. Godwin, dead.
- No. A. 7566. Lieut. Dewis, wounded; Lieut. Richardson, dead.
- No. unknown. P. B. Nally, both occupants dead.

In the case of one De Havilland Scout the number of the machine and the name of the occupants could not be ascertained.

### 2 Fuselage Biplanes.

The number of the machines and the names of the occupants could not be ascertained.

### 2 S.E.'s. *Single-seaters.*

- No. B. 514. Lieut. R. T. Leighton, wounded.

In the case of one S.E. the number of the machine and the name of the occupants could not be ascertained.

### 2 F.E.'s. *Single-seaters.*

- No. B. 1890. Occupant wounded.

### *Two-seaters.*

- No. 5652. Lieut. Fulton, A. M. Hawkins, 100 Squadron, both prisoners.



that they could be observed from the sea or by airships. Infringements of the regulations will be punished by fine or imprisonment for six months. If a communication is made to a foreign Power at war it is intended that the punishment shall be imprisonment for a number of years or by fine up to a hundred thousand kroner, or both imprisonment or fine.

### Zeppelins Over Petrograd Region.

ZEPPELINS are attacking towns considerably inland, reported the *Times* correspondent at Petrograd on October 19th. This is a sign that Petrograd will not be long left in peace from aerial attacks, especially now that the Germans can build Zeppelin bases within easy distance of the capital. All important munition works have been removed from Petrograd.



## FRENCH AND BRITISH STATIONARY AERO ENGINES.

[In publishing the following particulars and illustrations of French and British aero engines, which have appeared in a German aeronautical journal, it should be pointed out that all the figures and descriptive matter are as published by the German journal, and that we cannot vouch for the accuracy of the information given. Those who already have available information relating to the various engines described will easily "spot" any variations there may be, while to those not so favoured we would say that they need not place absolute reliance on the data given, since it would not, for obvious reasons, be advisable for us to publish corrections of possible errors. —ED.]

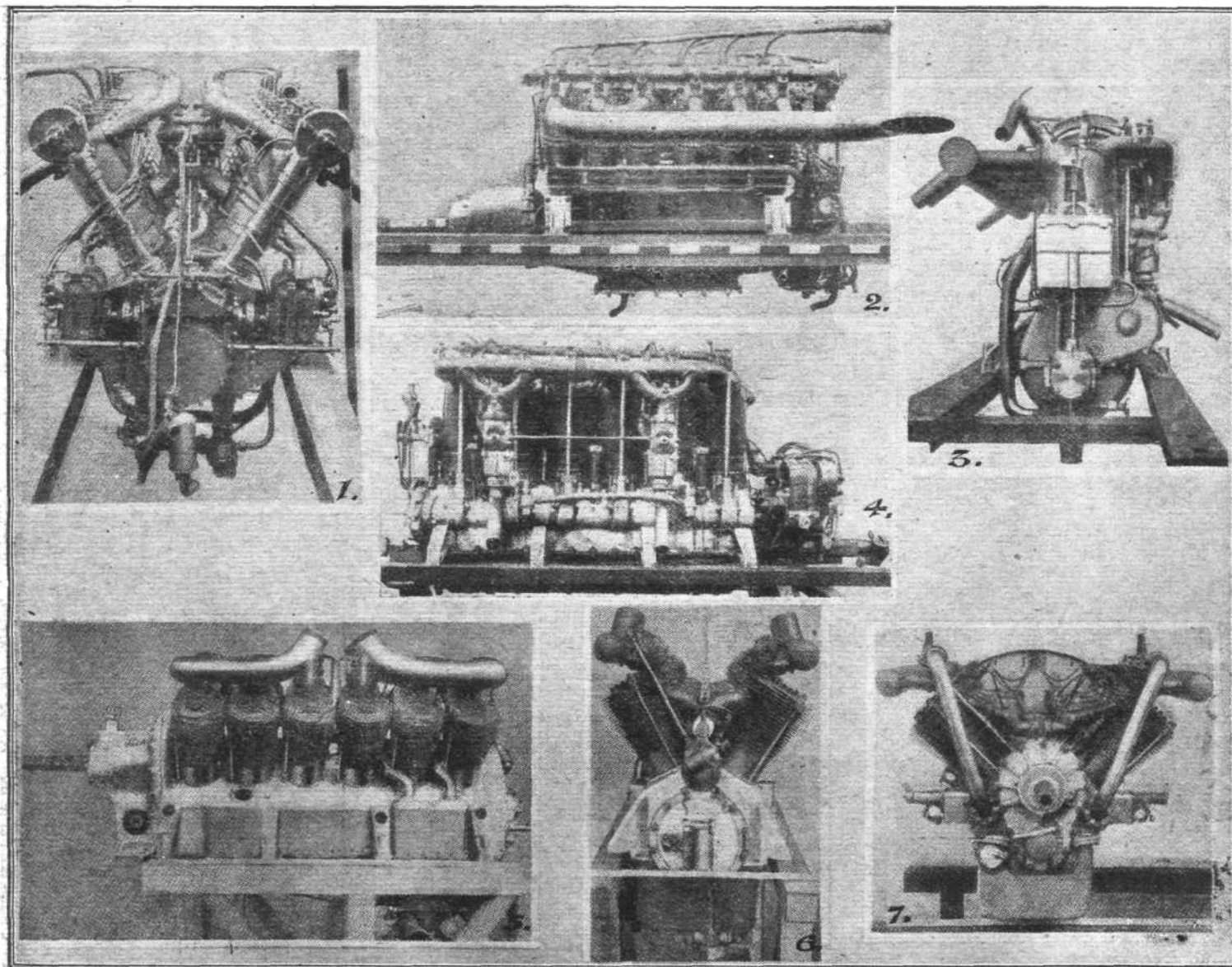
Of the air-cooled motors the Renault is the one which has been most extensively employed. This motor is designed and built by the Renault firm, Billancourt, near Paris. As is well known, the air-cooled cylinders are placed in the form of a Vee of 90°. The propeller is mounted, not on the crank shaft, but on the camshaft, which has been strengthened accordingly and is driven by spur gearing. The exhaust valves, which are placed above the inlet valves, are driven from the camshaft by push rods and rockers. The sparking plugs are placed between the two valves. The cylinders are secured to the crank case by a yoke and four long bolts. The cooling of the cylinders is effected by means of a peculiar fan, which exhausts the air from the space between the two rows of cylinders. The air enters through all the spaces between the cylinders, thus giving an even cooling. The newer Vee type Renault motors have a bore of 105 mm. and a stroke of 130 mm. The normal power of the 8-cylinder motor is 100 h.p., and of the 12-cylinder motor 130 h.p. The overall length of the 12-cylinder motor, from the back of the fan housing to the propeller, is 1,450 mm. While the 8-cylinder motor has only one carburettor, the 12-cylinder has two, one for each row. In the 8-cylinder type the magneto

is placed above the cam shaft, while in the 12-cylinder motor it is placed with its axis at right angles to the crank shaft.

In addition to their air-cooled motors the Renault firm, as shown at the exhibition of war trophies, produce several types of water-cooled motors. The 160 h.p. water-cooled, 8-cylinder Renault motor has a bore of 125 mm. and a stroke of 150 mm. The angle between the two rows of cylinders is smaller than in the air-cooled motors, and the cylinders are cast in pairs. There is a carburettor for each row of cylinders, and the inlet and exhaust valves are operated by an overhead camshaft as in the Mercedes. The camshaft is driven, as in the Mercedes, through bevel gearing.

The 240 h.p. 12-cylinder Renault motor has also a bore and stroke of 125 mm. by 150 mm. respectively. It develops a brake horse power of 267 h.p. While in the 8-cylinder type axis of the magneto is placed at right angles to the crank shaft, the magnetos are placed, in the 12-cylinder motor, in the angle between the cylinders. The water pump is arranged similarly to that of German engines. Over each row of cylinders there is an exhaust collector with a silencer provided with slots along the top.

The water-cooled Peugeot motor would appear to be a very



From "Flugsport."

**BRITISH AERO ENGINES.**—1 and 2, the 250 h.p. 12-cyl. water-cooled Rolls-Royce; 3 and 4, the 160 h.p. 6-cyl. water-cooled Beardmore; 5 and 6, the 150 h.p. 12-cyl. air-cooled English Daimler; 7, the 100 h.p. 8-cyl. air-cooled English Daimler.

## French and British Stationary Engines.

Name.	Cooling.	No. of cyls.	Bore.	Stroke.	R.P.M.		Nominal H.P.	Mean piston speed.	Stroke/bore.
					Motor.	Screw.			
Renault	Air	8	105	130	2000	1000	90	8.6	1.23
"	"	12	105	130	2009	1000	130	8.6	1.23
"	Water	8	125	150	1400	1400	160	7.0	1.2
"	"	12	125	150	1400	1400	240*	7.0	1.2
Peugeot	"	8	100	180	?	?	?	?	1.8
Daimler	Air	8	100	140	2000	1000	100	9.3	1.4
"	"	12	100	140	2000	1000	150	9.3	1.4
Beardmore	Water	6	142	178	1300	1300	160†	7.7	1.25
Rolls-Royce	"	12	114	164	1600	1024	250§	8.75	1.44

\* 267 b.h.p.

† Half engine speed.

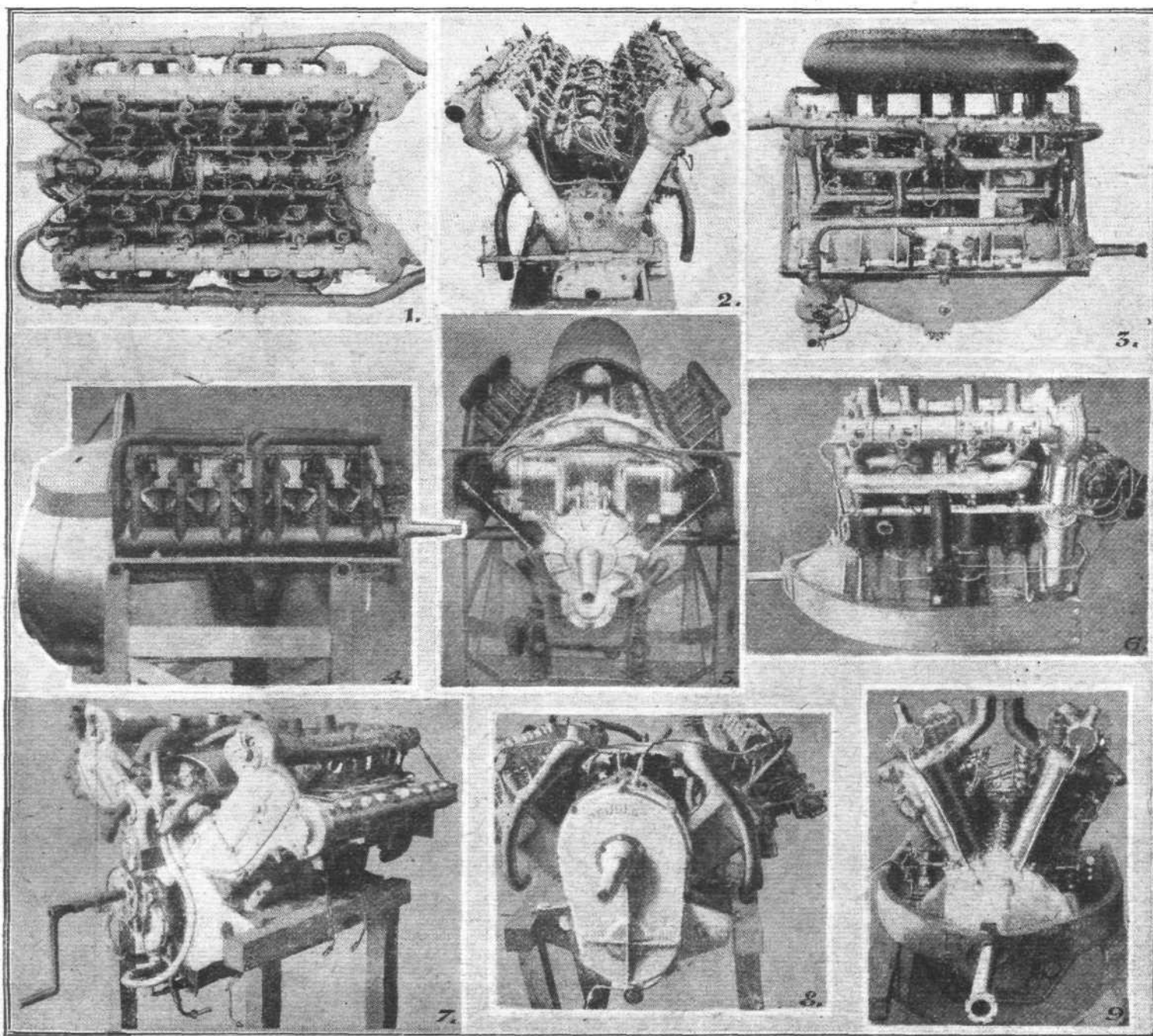
‡ 164 b.h.p. at 1300 r.p.m., 168 b.h.p. at 1400 r.p.m.

§ 260 b.h.p.

efficient one. The ratio of 180 mm. stroke to 100 mm. bore is very high, as is also the velocity of the explosive mixture on account of the high speed of revolution at which the engine runs. Two exhaust valves and two inlet valves have therefore to be employed in each cylinder. The cylinders are arranged in a Vee of 90°, and each row of four cylinders are cast *en bloc*. Each row has its camshaft operating inlet and exhaust valves. The crank case is cast in one piece. The crank shaft, which runs in ball bearings, makes twice as many revolutions as the propeller. The magnetos are placed in the Vee between the cylinders.

The air-cooled English Daimler was particularly favoured by the R.A.F. These motors had become the standard type for the B.E.2, and gave pretty good results with those machines, considering the then prevailing conditions of loading and uses to which they were put. This engine is built in two types, the 100 h.p. 8-cylinder and the 12-cylinder type of 150 h.p.

The former has a bore of 100 mm. and a stroke of 140 mm. The crank shaft runs at 2,000 r.m.p., while the propeller shaft runs at half that speed. The cylinders are placed at an angle of 90°. In the 150 h.p. 12-cylinder type the angle between the cylinders is smaller. The cylinder design is



From "Flugsport."

FRENCH AERO ENGINES.—1, 2 and 3, the 240 h.p. 12-cyl. water-cooled Renault; 4 and 5, the 130 h.p. 12-cyl. air-cooled Renault; 7 and 8, the 8-cyl. water-cooled Peugeot; 6 and 9, the 160 h.p. 8-cyl. water-cooled Renault.



the same as in the 8-cylinder type. While in the Renault the cylinders are held down by means of a four-armed yoke and four bolts, the cylinders of the English Daimler are only held by two bolts each. Since thus the yoke over the top of the cylinder is avoided it has been possible to provide extra fins on the top of the cylinder, running parallel with the crank shaft. The exhaust valves, as in the Renault, are placed above the inlet valves, and are operated by push rods and rockers. The induction pipes are unusually short, thus avoiding the sharp bends found in the Renault motors. The magnetos are mounted on brackets on the propeller end of the engine. They have been removed in the photograph.

The 160 h.p. 6-cylinder water-cooled Beardmore engine has steel cylinders with copper water jackets. The bore is 142

mm., and the stroke 178 mm. At 1,300 r.p.m. the power is 164 h.p. and at 1,400 r.m.p. 168 h.p. The valves are operated by an arrangement similar to that of the well-known Austro-Daimler motors. There is a carburetter for every three cylinders.

One of the highest powered English motors is the 250 h.p. 12-cylinder water-cooled Rolls-Royce. The Rolls-Royce firm were originally to build 200 h.p. R.A.F. engines, but did not like the job, which was later given to Napier, and set to work to produce their own aero engine. The design of the cylinders as well as the valve operating mechanism are, as will be seen from the accompanying photographs, founded on German lines. The reduction gearing from crank shaft to propeller is from 1,600 to 1,024. The carburetters are placed in the Vee between the cylinders.

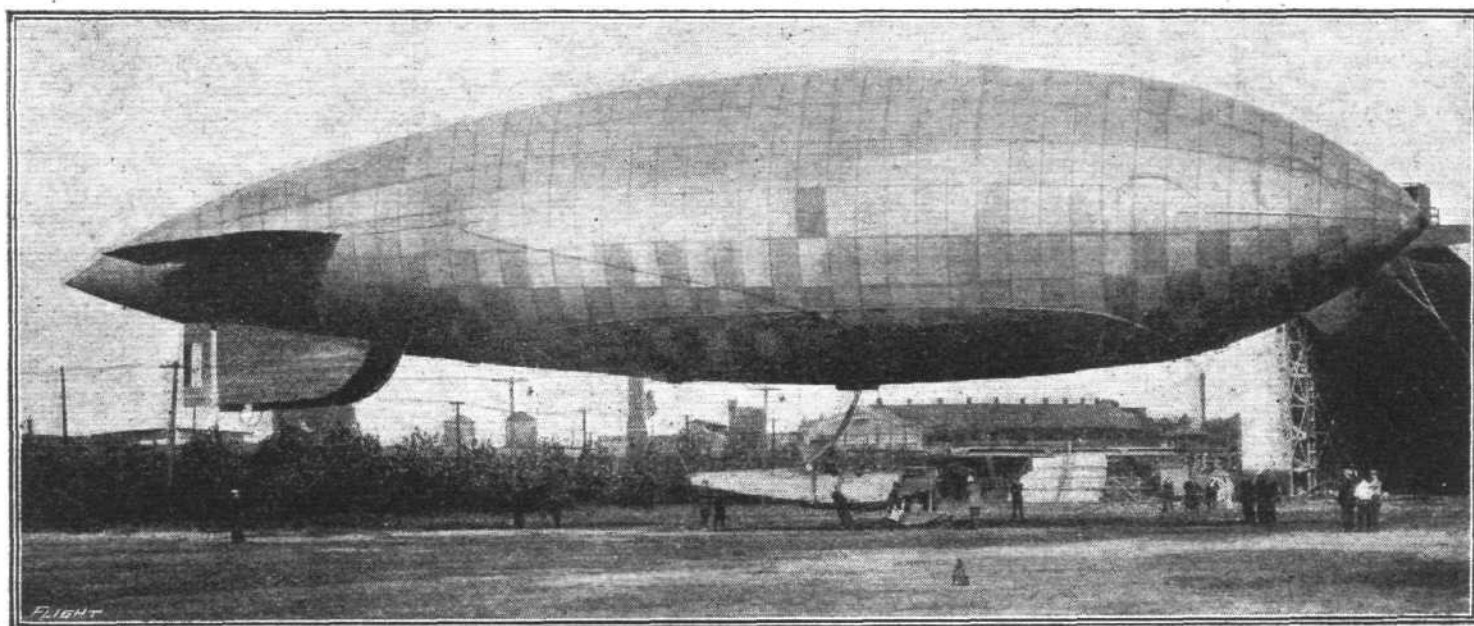
## AMERICA'S "BLIMPS."

AMERICA'S fleet of "Blimps" is growing rapidly. In addition to those delivered by the Goodyear Company, illustrations of which appeared in our issue of September 27th last, the acceptance trials took place recently of the first of these handy little ships that the Goodrich Company of Arkon are constructing. This dirigible, illustrated herewith and which only took four months to construct, underwent its tests at night over one of the big American cities. Piloted by Roy Knabenshue, one of America's pioneer airship pilots, it cruised over the course for eight hours, and passed all the tests satisfactorily.

The construction of these Blimps has been under the

realise that the dirigible because of its vulnerability is not an offensive machine—at least, in its present construction. But as a scout cruiser over harbours and coast lines it has no equal. Its radius of vision is greater than that of any ship, and at heights to which it can ascend it is virtually safe from an explosive shell that might be directed from a hostile warship.

"The chances of a hostile warship ever approaching within range of the balloon are too remote to even deserve consideration. Therefore, let it be remembered that the dirigible in its present form is really a patrol boat of the air. The United States with a big fleet of dirigibles could keep better watch over its shores than it could with ten times the number of ships,



A close up view of one of America's "Blimps," constructed by the B.F. Goodrich Co. of Arkon, U.S.A.

supervision of M. Henri Julliot, the famous French airship expert, whose services have been acquired by the Goodrich Company, and who brought over from France a large experienced staff, including a number of girls, well skilled in envelope making.

M. Julliot has expressed his opinion as to the worth of the dirigible in this war as follows:—

"The dirigible is just as big a part of the war machine to-day as it ever was. In fact, its possibilities are limitless. The attempts by the German Government to use it as a terrible offensive machine are well known. The consequences are also well known. But the German Government has yet to

"Because of its sensitiveness, the dirigible requires the most careful of pilots.

"The dirigible is no car for a student. For instance, you might be flying serenely along in the sun and suddenly the sun slips behind a cloud and you find yourself falling rapidly. The cooler air has caused the gas in the envelope to contract. Then again, in experiments I have found that in the sun-lighted air you can cause a dirigible to drop suddenly by simply placing a leaf on top of it. Then still again at night, when the air is cool, the ascent or descent of the balloon can even be controlled by the direction of a powerful searchlight upon the bag."

### A North Sea Skirmish.

The following announcement was issued by the Admiralty on October 28th:—

"Six British and French destroyers patrolling off the Belgian coast on the afternoon of 27th inst. sighted and attacked three German destroyers and 17 aeroplanes. Two direct hits were obtained on the enemy's destroyers, which immediately retired under the protection of their land batteries. The aeroplane formation was broken up by the

anti-aircraft gunfire of our destroyers, each of the aeroplanes dropping three bombs in the vicinity of our vessels, which suffered no damage beyond two men being slightly wounded."

### Another Italian Record in U.S.A.

LIEUT. RESNATI, on a Caproni machine, with eight other passengers on October 22nd succeeded in flying from Newport News to Mincola, Long Island, a distance of about 300 miles in 4 hours 15 minutes, the average height being 4,500 ft.

CHART 1.

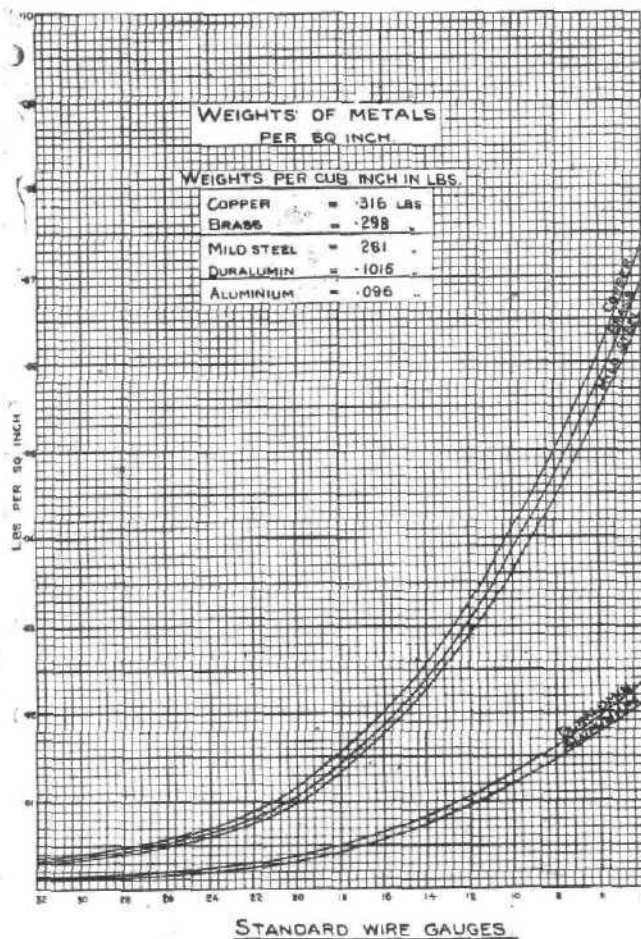


CHART 2.

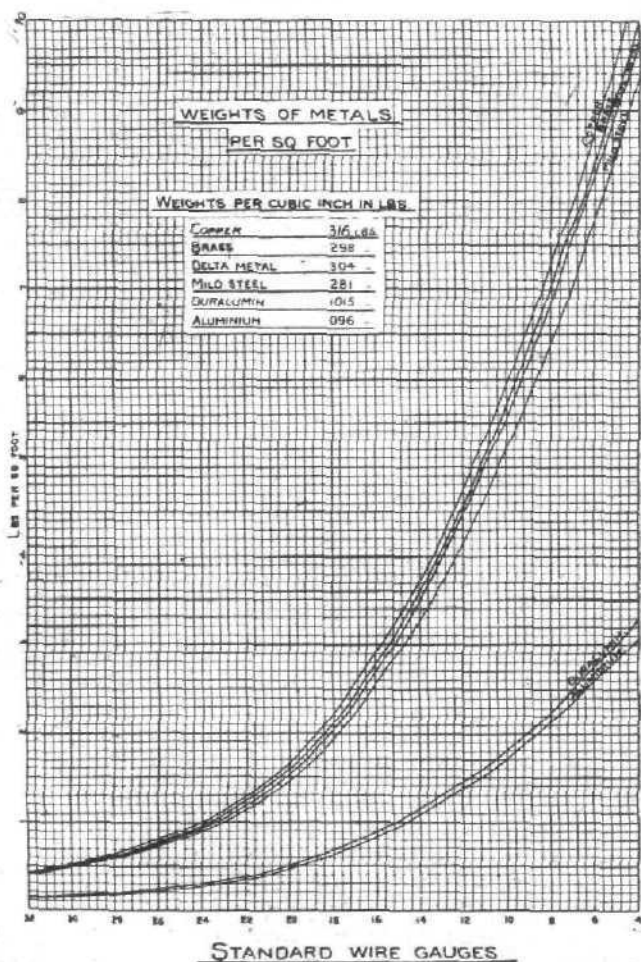


CHART 3.

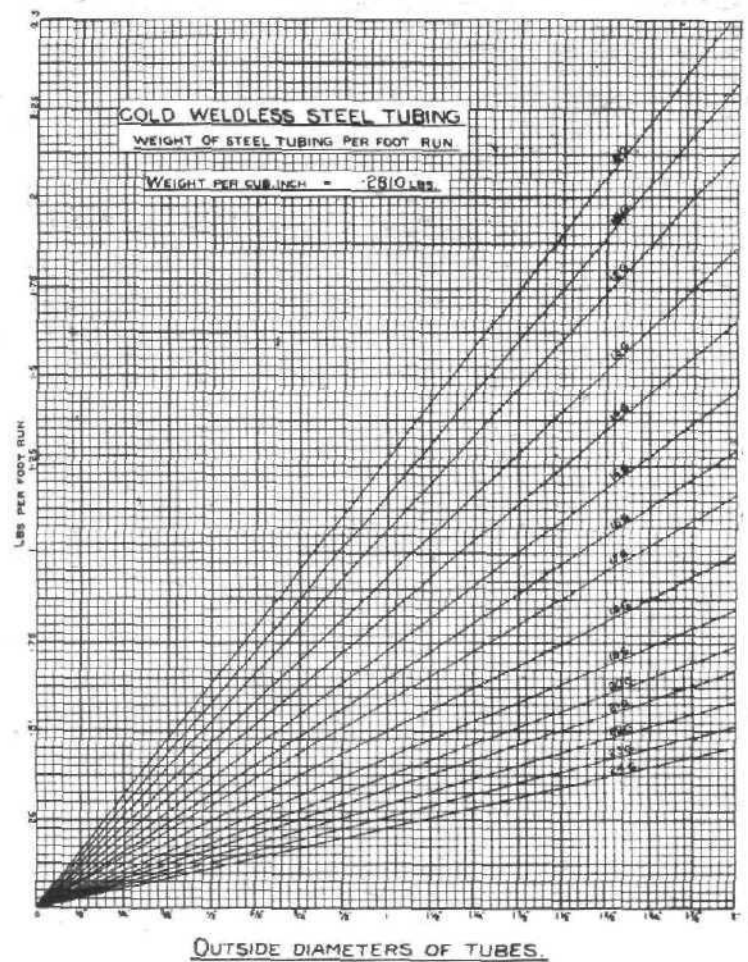
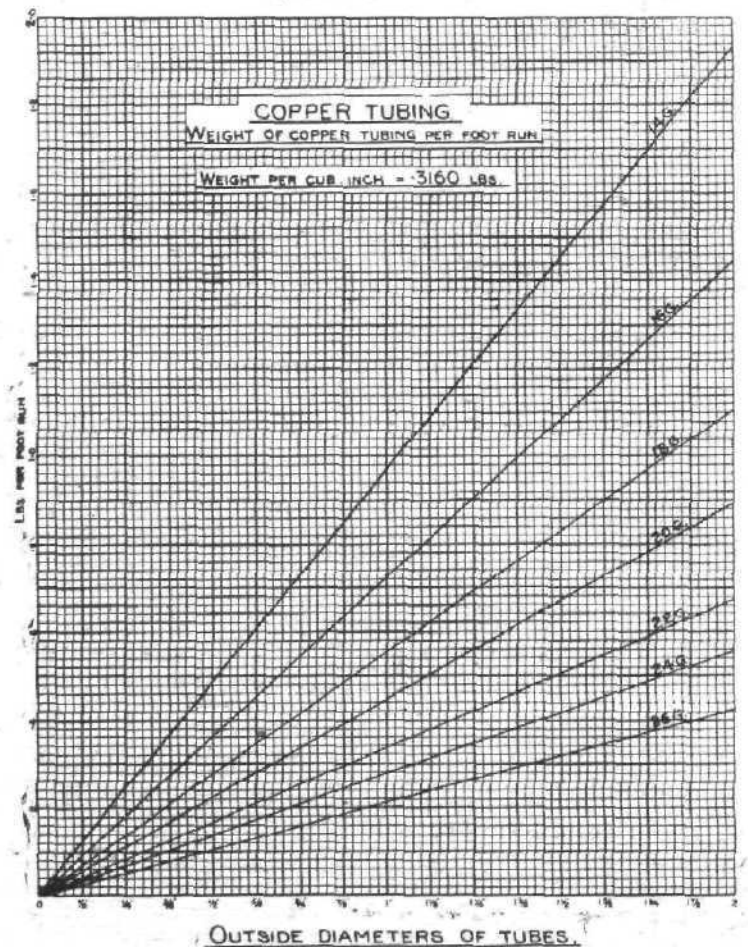


CHART 4



Weight estimating charts. See p. 1141.



## WEIGHT ESTIMATING CHARTS.

By "T. H. C."

IN the matter of aircraft design the weight factor has become a very important item. It is very essential that the weight of all details of construction and components should be absolutely reduced to a minimum consistent with the strength, that is in all parts subjected to bending, compression, shearing, tension and torsion. Great care must be taken when lightening the various details of construction that any parts taking any loads should be very carefully stressed, and its sectional area must only be reduced to that required to take a load, this load being, for example, five or six times the greatest load it is subjected to under normal flying conditions. This is usually termed the factor of safety. The accompanying charts (page 1140) have been prepared to enable the weight estimator to calculate the weights of various superficial areas of materials according to its thickness.

**Chart 1** shows the curves for weights of metals per square inch and the Standard Wire Gauges (Imperial) range from 4 to 32. The gauge thicknesses are tabulated horizontally, whilst the weights are indicated vertically; for example, 1 square inch of 18 gauge Duralumin weighs about .005 lb. avoirdupois.

**Chart 2** shows the curves for weights of metals per

square foot. This chart is almost identical with the former one. Example:—1 square foot of 18 gauge Duralumin weighs about .68 lb.

**Chart 3.**—This chart is prepared to enable the estimator to readily read off the weight of steel tubing knowing its outside diameter and the thickness or gauge of the wall of the tube per foot run of length. Weights are plotted vertically and diameters horizontally, the curves indicate the gauges. Example:—1 inch diameter tube, 17 gauge thickness of wall, by one foot in length, weighs about .65 lb.

**Chart 4.**—This chart is almost identical with Chart 3, but has been prepared for copper tubing, and is read in precisely the same manner.

These charts have been found extremely useful in facilitating the methods of finding out the amount of material required for each particular fitting, by running a planimeter over the different views on the drawings, thereby enabling the estimator to eventually formulate the cost of the materials required to make such component fittings. The results are usually for the costing office or buying office departmental uses. The charts have also been found to be of great assistance when estimating for tenders for contracts.

## AVIATION IN PARLIAMENT.

### Rewards for A.A. Men.

Mr. BOWERMAN, in the House of Commons on October 24th, asked the Under-Secretary of State for War whether any special recognition has been, or is intended to be, given to the men in charge of the anti-aircraft defences of London for the manner in which they worked their guns during the recent air raids?

Mr. Macpherson: The question of recommendation for reward rests with the Field-Marshal Commanding-in-Chief, Home Forces, and such recommendations as may be initiated by him will receive due consideration.

Colonel Claude Lowther: Is it not the fact that these airmen have done the most gallant acts against enemy aircraft, and that up to the present time they have received no reward?

Mr. Macpherson: I have no knowledge of that. My knowledge is the contrary. I think the House knows that in several cases men who have acted gallantly in defence of this country have been rewarded.

### Air Raid Damage to Live Stock.

MAJOR WHEELER, on October 25th, asked whether, when agricultural live stock has been destroyed by the action of hostile aircraft, it is proposed to compensate owners for the losses that they have sustained?

Mr. Bonar Law: I will see that this point is considered in connection with the new Government scheme for insurance against damage by aircraft.

### Compensation for Air Raid Damage.

Mr. GILBERT asked the Prime Minister what steps the Government have taken in order to grant immediate financial relief to people whose homes and property may be destroyed and ruined by enemy air raids and some existing Government Department be authorised to deal with the same, and will he indemnify all local authorities for any urgent grants or expenses that they may spend on such cases?

The President of the Local Government Board (Mr. Hayes Fisher): I have been asked to answer this question. The local committees which have been established to deal with the prevention and relief of distress due to the war have been authorised in the case of air raid distress to grant immediate financial relief up to an amount equivalent to the amount of the Army separation allowances, and in special cases to make supplementary allowances. Small grants may be given at once pending investigation of the needs of the case. They have also been authorised to defray the funeral expenses of victims of the raids, to make special grants for medical or surgical treatment, and to replace essential articles of furniture and clothing. Grants for these purposes are made out of the National Relief Fund and the Mansion House Fund upon the recommendation of the Government Committee for the Prevention and Relief of Distress, and the local committees are fully aware that any applications made by them for such grants will be dealt with promptly. The committees, as a rule, have funds already in hand, and any expenditure properly incurred by them would, of course, be refunded.

The provision which has been made for the relief of air raid distress was discussed at length at a recent Conference at the Local Government Board with the Mayors and other representatives of the local authorities in the Metropolitan

area, and the members of the Conference expressed their satisfaction with the measures which had been taken. I may add that the question of compensation from public funds for damage to property caused by enemy air raids is under consideration by the Treasury.

Mr. Gilbert: Has the right hon. gentleman any information from a certain district where a raid took place last week that nothing has been done except what has been done by voluntary effort in that district as regards relief? Will the right hon. gentleman take steps to see whether he can get the local committee to which he referred to take action in the matter at once?

Mr. Fisher: If the local committee has done nothing, the local committee has singularly failed in carrying out its duty.

Mr. Hogge: Can the right hon. gentleman say, with regard to his answer which deals with the granting of relief up to the amount of separation allowance, whether there is any limit to that in the case of casualties, and does that become a pension; and, if so, is he aware of the inequality between the pension awarded for casualties in air raids and that for death in the war?

Mr. Fisher: If casualties result in permanent injury, that permanent injury will be compensated for on the lines of the Workmen's Compensation Act.

Mr. Hogge: It is not a question of compensation for injury. Can my right hon. friend say if the husband, for instance, is killed, will the widow get a grant equivalent to the existing separation allowance; and, if so, has he taken into consideration the fact that that is different from the pension given in the case of the death of a man in the war?

Mr. Fisher: I think that is a detailed question of which I ought to have adequate notice.

### Spares for Aeroplane Engines.

COLONEL SIR NORTON-GRIFFITHS asked the Parliamentary Secretary to the Air Board if he will say what steps are being taken to rectify the shortage of spares for aeroplane engines; and if he will state who is responsible for this situation?

Sir Worthington Evans (Joint Parliamentary Secretary to the Ministry of Munitions): I have been asked to answer this question. There is no general shortage of aero-engine spares. Shortages occur at times in connection with individual spare parts. Emergencies of this nature are met, when they arise, by making the best use of the resources at the disposal of the Ministry.

### Delay in Testing Engines.

SIR N. GRIFFITHS asked the Parliamentary Secretary to the Air Board whether any delays occur to manufacturers in the output of aeroplane engines by or through inspectors responsible for the testing of engines refusing to test on Saturdays and Sundays; and, if so, whether the Air Board will make the necessary arrangements, either by paying double overtime or putting additional men on, to remedy this state of affairs?

Sir W. Evans: I am informed that no delays have occurred in the output of aeroplane engines through the refusal of inspectors responsible for the testing of engines to test on Saturdays and Sundays. When the conditions of output are such that additional inspection staff is required, the extra staff is provided, either permanently or temporarily, as may be necessary.

### Flax Control Board.

THE Government has approved the formation of a Flax Control Board, with the following terms of reference: "To supervise and co-ordinate the arrangements for securing supplies of seed, flax, and flax goods for war purposes, and to take such steps as will satisfy the Board that, after meeting requirements for aeroplanes, sufficient flax is, so far as possible, available for other war purposes, and to take any further action that the Board may consider necessary."

The Committee will be constituted as follows:—

Chairman—Lord Colwyn.

Representatives of the War Department—Mr. T. B. Barker, Mr. W. H. Gardner, Mr. J. Beattie.

Representatives of the Department of Aeronautical Supplies (Ministry of Munitions)—Col. W. Alexander, Major A. E. J. Reiss, Capt. Stanley Clark.

Representative of the Admiralty—Mr. Percy Minter.

Representatives of the Department of Agriculture for Ireland—Professor J. R. Campbell, Mr. Frank Barbour.

Representative of Scottish Spinners—Mr. W. Norman Boase.

Representative of Irish Spinners—Mr. Garsett Campbell.

Mr. P. Guedalla will act as Secretary to the Board, to whom all communications should be addressed at War Office (Contracts Department), Imperial House Tothill Street, Westminster, S.W. 1.



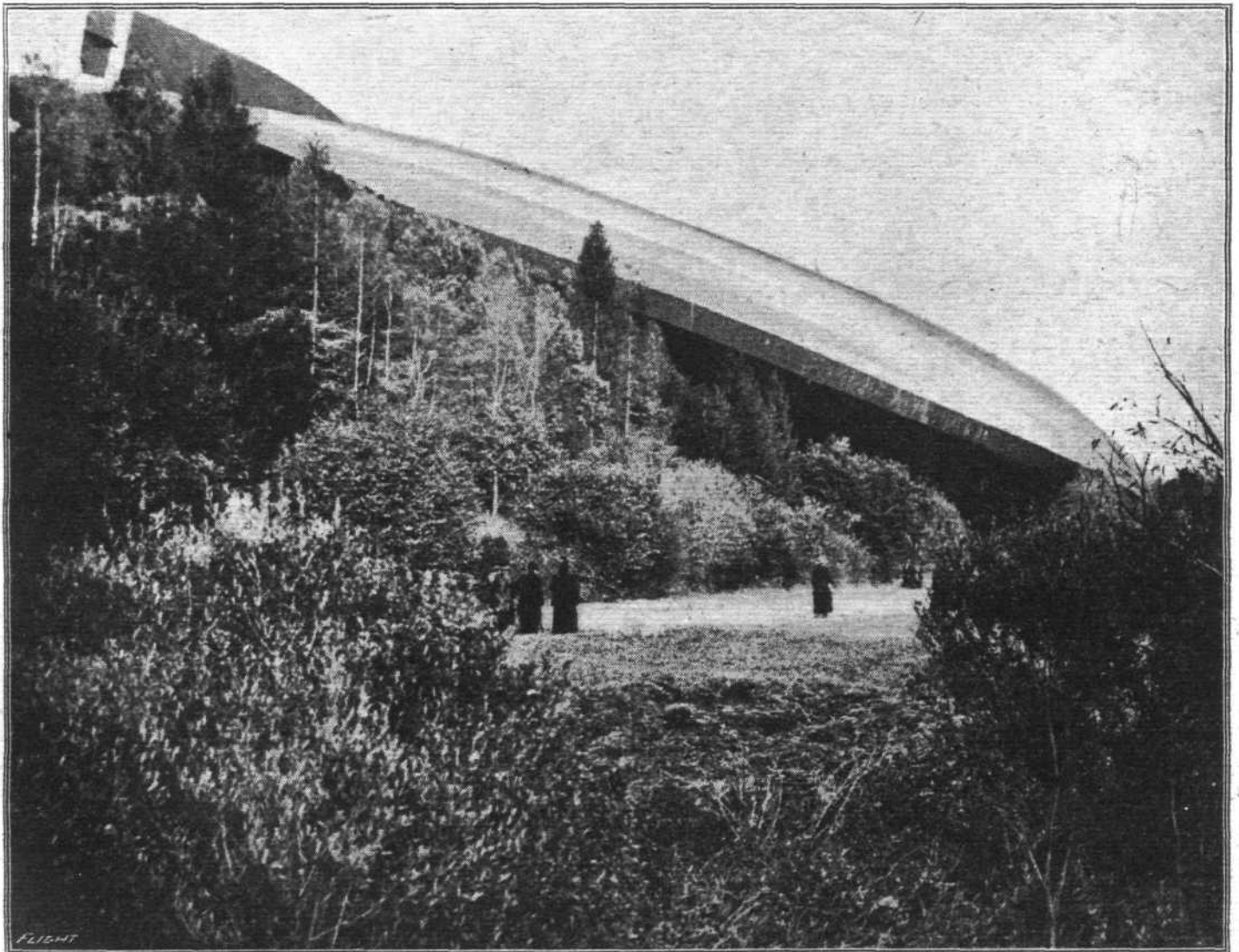
M. NABOKOFF, Chargé d'Affaires at the Russian Embassy, who is giving much time to promoting Russo-Indian trade relations, holds very encouraging views in regard to the part which aviation may take in their development. Speaking on Monday at Caxton Hall to the members of the East India Association, M. Nabokoff, in introducing Baron Heyking, who was reading a paper upon this very important subject, prophesied that the war having removed all the factors, which, in the past, had militated against the expansion of Russo-Indian trade, they were permitted to-day to indulge in the vision of a great railway loading cargoes in Northern Russian ports and discharging them in Madras. They might even see airships carrying goods to and from the two countries. Indeed, if the nations at the end of the war showed the same steadfast genius in constructive as they were at present displaying in destructive work, such a development was a foregone conclusion.

It is but a graceful act, that the Chancellor of the Exchequer should have agreed to the Commissioners of Inland Revenue, when computing any sums due for Income Tax, keeping their hands off monetary awards granted to captains and officers of the Merchant Service in fighting enemy submarines. The decision is of more than passing interest to our air forces, bearing in mind the very material help which comes from that side.

It is curious that in the "Dora" regulations just issued in connection with air-raid shelters, it should have been deemed necessary to also attach a new regulation which orders that "no person shall without the permission of the competent naval or military authority, or some person authorised by him—(1) Display any light, or make or keep burning any fire in such a manner as to serve as a signal, guide or landmark: or (2) ignite or otherwise make use of any fireworks or other similar device."

ITEM 2 may well refer to the ancient Guy Faux frivolities which these times might cause a fluttering amongst the more nervous specimens of the public, whose vitality has been tapped by sugar, tea, margarine and what-not queueism, but when we come to No. 1, why should it be necessary, in this fourth year of the war, to specially legislate again for such an iniquity? Is there anyone suspect? Are the advocates for complete internment of all the Germanic tribe after all justified in their contentions?

LAST week's number of the *Sphere*, an aviation issue, is a very remarkable journalistic achievement under war-time conditions. The series of black and white and coloured plates is about the finest tribute in colours to aviation progress so far carried out in illustrated journalism. The number should easily be at a premium already.



**THE LONDON NIGHT RAIDERS.**—The fate of a bomb-dropping Zepp. The "L49," as she lies across the treetops at Bourbonne-les-Bains. A fair idea of the size of the airship can be gathered by comparison with the figures in the foreground. So far as it is possible to judge from this and the other two illustrations, the "L49" does not differ very greatly from the "L33" described in detail in our issue of October 26th, 1916.

(French Official Photograph.)



**The Jovial Airman.**

I "take off" from the spring-y lawn,  
I hover with the lark at dawn,  
I rise, I call,  
I glide, I "stall,"  
Exuberently, I fly through space,  
My outstretched wings increase in pace,  
With early morn I run a race.  
I am a swallow on her flight,  
I catch the golden-tinted light,  
I "bank," I "loop,"  
I climb, I whoop,  
Delightedly, I breathe the air,  
I quaff the ozone rich and rare,  
And to the breeze my cheek I bare.  
I revel in my engine's song,  
I watch, and hum my way along,  
I laugh, I sing,  
I shout, I fling  
Exultantly the earth away.  
I dally, for I fain would stay  
And live near Heav'n for one brief day.  
I see the mellow tints of morn,  
I joy with day so newly born,  
I rise, I glide,  
I climb, I ride  
Triumphantly above the rain  
That penetrates with might and main  
The woods and dells and mountain chain.  
I end my flight and caper round,  
I gently volplane to the ground;  
I pine, I throb,  
I sigh, I sob,  
With nimble feet to earth I spring,  
With airy voice I laugh and sing,  
My heart and soul have been a-wing!

W. S. T.

"We must fly high, fly far, fly fast, fly, not only in singles, but in squadrons and in fleets." was how Mr. Donald Macmaster, M.P., when speaking at Chertsey on Saturday,

finished up a critical analysis of the German air-raids. In this regard Mr. Macmaster is of opinion that we are not in a position of security or superiority or even of equality. Our country had been invaded, our capital bombed, he said, but had we returned the compliment? If we had not we were, he maintained, really fighting a defensive battle in the air, and a battle that was fraught with the greatest possible danger in the near future. For if the Germans could send twenty Gotha machines to drop bombs on London, it was a matter of increasing the group to send a fleet of one hundred or two hundred Gothas, or whatever may be an improvement on the Gotha machine. He thought that the Government would be none the worse for pressure from the public in this connection. This did not imply panic; on the contrary, it was simply an appeal to prudence, common sense, and patriotism; indeed, to necessity.

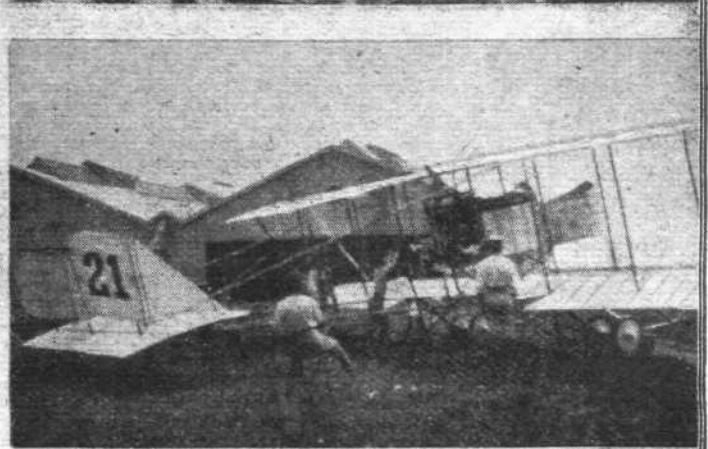
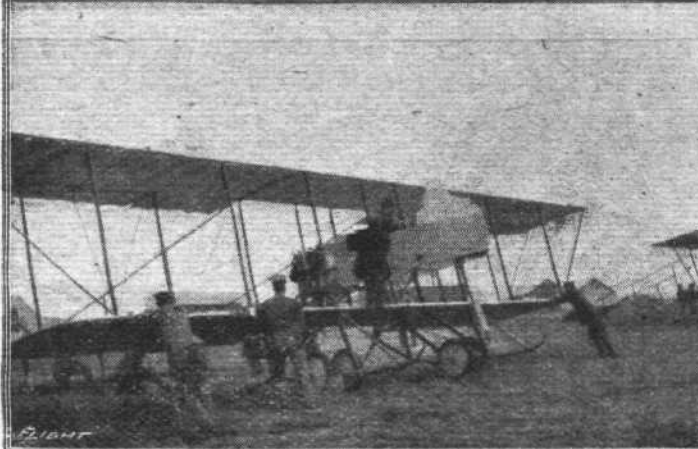
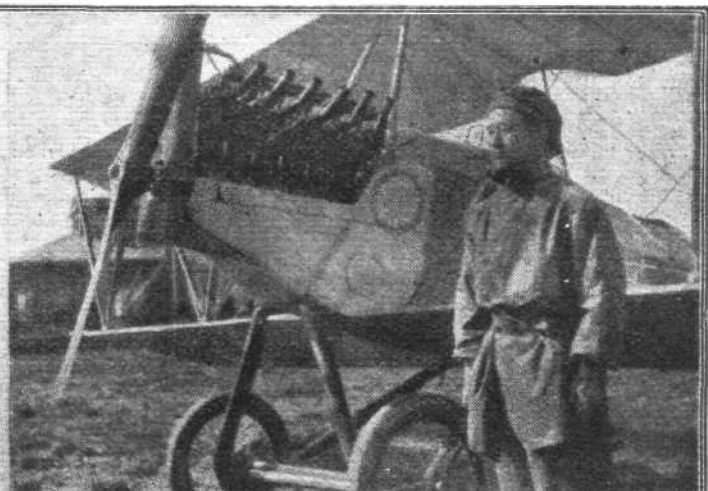
ALL honour to Captain Amundsen, the great Norwegian Arctic explorer (who largely pins his faith to aviation as the final stage in fixing up matters with the Poles), for returning his German decorations to the Kaiser with the characteristic intimation that "as a Norwegian sailor I beg to return my German decorations as a personal protest against the German murders of peaceful Norwegian seamen in the North Sea on October 17, 1917."

M. JULES BOITEUX, the courageous sportsman who last week, single-handed, held up the Zeppelin commander of L 49 and his crew at Bourbonne les Bains and thus prevented the destruction of the airship, is thereby a couple of hundred pounds to the good, presented to him by *Le Journal* for his very alert tactics.

PARIS is to have the opportunity of inspecting this monster air-craft after the authorities have had their fill of the details. It should prove a good anti-pacifist argument.

**THE Imperial Air Service.**

It was announced on October 24th in the *London Gazette* that Col. Sir H. Capel Holden, K.C.B., is to be Hon. Brig.-General. Last week Sir Capel was elected Master of the Gun-makers' Company.



**AVIATION IN JAPAN.**—Top, left: the teachers and students of Nippon Flying School at Haneda; right: Mr. Yukiteru Oxaki, the famous pilot of the Japanese Aeronautical Society. Below, left: at Tokorozawa Military Central Aerodrome. A Japanese 70 h.p. Maurice Farman type of the Japanese Aerial Force. On the right a 90 h.p. Maurice Farman on the home ground.

FROM Chicago. As others see us and it. P.M.R. writes: "It may interest your readers to learn what people here think of the British attitude in connection with the German air-raids on England. I have been to New York, Buffalo, Detroit, Pittsburg, Chicago, Denver, Salt Lake, Los Angeles, San Francisco, and Portland (Oregon), and everywhere I have been asked about these raids and why we do not stop them—or at any rate, retaliate. When I tell people that our 'principles' prevent us from doing this they laugh and say that we are fools. They simply cannot believe that a bishop, or a socialist peer, or even an ex-attorney-general can advocate non-retaliation without being hanged to a lamp-post. They regard us as helpless asses whom the United States must rescue from a mess or as consummate fools who deserve all we get, and give us no credit for 'high-mindedness' at all. On the contrary, our flaccidity does us a lot of harm in their eyes, and all sections regard us as being afraid to make the only reasonable reply to German raids. 'If it is merely a matter of principle,' people say, 'why have you adopted poison gas, liquid fire, and kindred things, the use of which surely involves a question of principle too?' Nonsense. Wait and see what we will do to their cities if they bomb our camps."

The American newspapers do not say this, because they are careful to avoid criticising us, but the people say it—and the harm it does!"

THE Dutch Government has decided to send a military commission to Sweden to arrange for about 250 motors for aeroplanes and submarines.

AN interesting case is reported in our current issue, in which a compensation clause (under the Workmen's Compensation Act, in connection with an air-raid) is dealt with. The interpretation of the various clauses of this Act is a pretty ticklish business and as an appeal has been lodged, it is necessarily a case of having to "wait and see." In any event, the ultimate result is mainly of consequence to the Insurance Companies, by whom no doubt the case will be carried to its bitter conclusion. Maybe the war will be over before agreement is arrived at and then—well, it will hardly matter one way or t'other.

ACCORDING to the hope of Mrs. Florence Allen Degen, hon. secretary of the American section of the Lyceum Club, when speaking at Sir Richard and Lady Cooper's Carlton House Terrace house on Monday upon "Women's Work in our Allied Countries," an American girl who is a very expert aviator, may be the first person to bomb Berlin, that

being her one great ambition. Nothing like keen competition for a job like that, so it's up to "one of our's" now to get going and get the job over, lest such a laurel wreath should fall even to our American cousins.

## TEN YEARS AGO.

Excerpts from the "Auto." ("FLIGHT's" precursor and sister journal) of October, 1907. "FLIGHT" was founded in 1908.

### "NULLI SECUNDUS" DISMANTLED.

At the time of going to press last week, "Nulli Secundus" was still riding proudly at her moorings on the Crystal Palace cycle track, waiting until the elements were favourable for Colonel Capper and Mr. Cody to sail her back to Farnborough. On October 13th and Monday there was an adverse wind, and on Tuesday the heavy rain so saturated the rigging that the airship was in effect "water-logged." The conditions on Wednesday were still unfavourable, and finally on Thursday morning a gale sprang up which was inimical to the airship's existence in its exposed harbourage. Prompt steps were taken by the sappers in charge, but even before additional help could be obtained from the Crystal Palace employees (who were quickly mobilised on the spot by the manager), the wind increased in force to such an extent that deflation became an obvious necessity in order to prevent further damage.

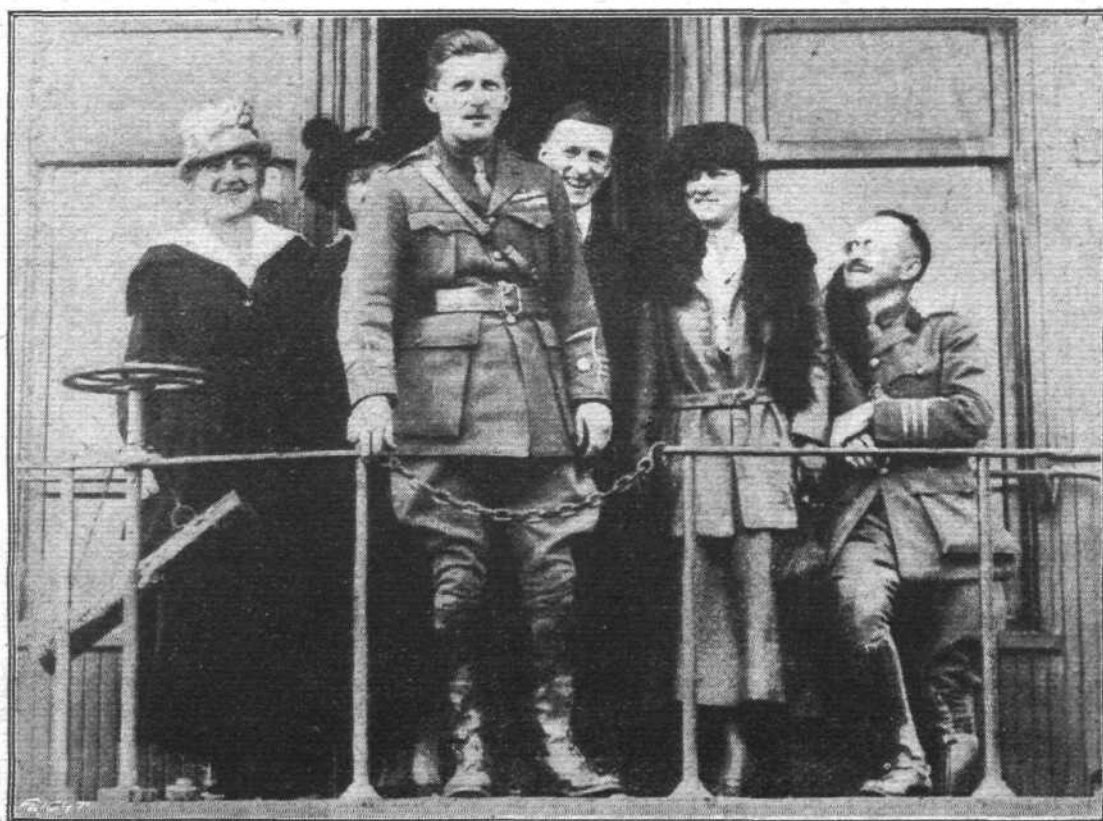
### M. FARMAN MAKES A SUCCESSFUL FLIGHT.

Tuesday, October 15th, was a memorable day for M. Henri Farman, who has of late turned his attention to aeroplanes, for he succeeded in flying a distance of about 285 metres, thus establishing a new unofficial record (Wright Brothers barred) in the heavier-than-air school of flight. M. Farman made his experiment while a high wind was blowing, and the aeroplane rose from the ground after travelling about 100 yards. At an elevation of about 18 ft. it commenced to travel horizontally, and continued its undulating flight at a speed of between 20 and 30 miles an hour, until it finally came down gracefully and without shock to the earth.

### LONDON TO SWEDEN BY BALLOON.

On the evening of October 12th the enormous *Daily Graphic* balloon, "Mammoth," left the grounds of the Crystal Palace in charge of Mr. A. E. Gaudron, accompanied by Mr. Turner and Mr. Tanner, in order to try and establish a record long-distance run. After crossing from Yarmouth to North Denmark, the balloon travelled rapidly over Scandinavia, where, unfortunately, the aeronauts lost their bearings in a fog, and had to descend at Brochan, in Sweden.

Major W. A. Bishop, V.C., R.F.C., with his wife, mother, and brother in private railway car at Shelburne, Ontario (his native province), where he was "held up" by enthusiastic admirers upon his wedding journey to Owen Sound.





# Personals

## Casualties.

The death in action is reported of Lieutenant ARMAR SOMERSET BUTLER, South Lancashire Regiment, for three years attached to the Wiltshire Regiment, and within the last six weeks to the R.F.C. He was the son of the Rev. Pierce Butler and Mrs. Pierce Butler, East Stoke Rectory, Wareham. Lieutenant Butler had served for two years in the Balkans, was recently severely wounded, and on his recovery volunteered for the R.F.C. He belonged to a distinguished military family, being the grandson of the late General the Hon. H. E. Butler, a Peninsular hero and nephew of Major James Armar Butler, known as the "Hero of Silistria" at the beginning of the Crimean War. Lieutenant Butler is the second son of the Rev. Pierce Butler to fall in the war, his youngest brother having lost his life in his Majesty's ship *Hampshire* in June, 1916. Two other brothers are serving.

Lieutenant ALEXANDER NEVE LEESON, D.S.O., R.H.A., attached R.F.C., who was killed on October 22nd, was the only son of Mr. and Mrs. Edward Leeson. He was born in 1895, and was educated at Clifton Bank, St. Andrew's, Bengoe School, Hertford, and Rugby, where he was in the Army class and a cadet officer in the O.T.C. In August, 1914, he entered Woolwich, where he was under-officer, and was awarded the Tombs Memorial Prize. He got his commission in the R.F.A. in February, 1915, and joined his battery in Ireland. In July, 1915, he went to the Dardanelles with the 13th Division. He was invalided with scarlet fever to Mudros, rejoined his regiment in Egypt, and in February, 1916, went to another front. After several months of active service he was transferred to the R.H.A., and was awarded the D.S.O. Last August he became attached as an observer to the R.F.C.

Lieutenant DAVID RHYS CADWGAN LLOYD, R.F.C., was killed on June 16th, aged 20. After passing through the O.T.C. at Oakham, he served in Belgium and France with the Essex Yeomanry in 1914, and with the Loyal North Lancashire Regiment in 1915 and 1916, when he was wounded at the Battle of the Somme. He joined the R.F.C. the same year. Lieutenant Lloyd was the younger son of Mr. and Mrs. Llewelyn Lloyd, of Kirby-le-Soken, Essex.

Captain FREDERICK DESPARD PEMBERTON, R.F.A. and R.F.C., who was formerly reported missing and is now known to have been shot dead from an enemy aeroplane on August 21st, was the eldest son of Mr. and Mrs. F. B. Pemberton, of Mountjoy, Victoria, British Columbia. He was educated at Haileybury and the Royal Military College, Kingston, Canada. He received his commission in the R.F.A. during the summer of 1915, and on coming to England was attached to the R.F.C., in which his abilities as a skilful and courageous pilot earned him rapid promotion.

Captain W. V. TREVOR ROOPER, Yeomanry, attached R.F.C., who was killed in the air on October 9th, aged 20, was the youngest son of Mr. and Mrs. P. L. Rooper, of Poppy's Corner, Redhill, and formerly of The Elms, Gresford, Denbighshire. He was educated at Bilton Grange and Charterhouse, and enlisted in the Yeomanry on the outbreak of war, at the age of 17. After five months he was granted a commission in the Yeomanry, and was attached to the R.F.C. in September, 1916. He went to the front last April, and was gazetted captain and flight commander in August.

Second Lieutenant GERALD HUDDART SWANN, R.F.C., killed on October 18th, aged 18, was the eldest son of Mr. and Mrs. Henry B. Swann, of Hangerfield, Witley, and grandson of the late James Huddart, of Melbourne and London. He was educated at Cordwalles (Maidenhead) and Rugby, where he was for some years a member of the O.T.C., leaving from the sixth form in December last. He at once joined the R.F.C., and, obtaining his commission in May, proceeded to the front in August.

Second Lieutenant GEOFFREY NIELD WHITEHEAD, R.F.C., who was killed on October 15th, was the third son of Mr. and Mrs. W. A. Whitehead, of Langley, Baildon, Yorks. He was educated at Shrewsbury and Christ Church, Oxford, and before joining the Army was associated with his father in the business of Messrs. W. and J. Whitehead, New Lane, Mills, Laisterdyke, Yorks. He married in 1913 Kathleen, daughter of the late W. M. McLaren and Mrs. McLaren, of Bradford, and leaves a son.

Second Lieutenant HUGH HOLTOM WHYTEHEAD, R.F.C., who was killed in action on July 12th, aged 21, was the only son of the late Mr. Hugh Whytehead and Mrs. Whytehead, The Hermitage, Stratford-on-Avon.

Second Lieutenant GEORGE GRANT CAMERON, Gordon Highlanders, attached to R.F.C., who was killed in a flying accident on October 16th, aged 21 years, was the only son of the late G. L. Cameron, Earlsells, Bieldside, and Mrs. Cameron, 2, Forest Road, Aberdeen, and dearly-beloved grandson of the late Mrs. Cameron, 20, Shaa Road, East Acton.

Second Lieutenant CHARLES WILLIAM HOMER, R.F.C., who died on October 27th as the result of an aeroplane accident, was the son of Mrs. Miller, Pinewood, Maidenhead, and the husband of Mona Homer.

Lieutenant A. D. STEWART, R.F.C., who was accidentally killed while flying in England on October 19th, was the youngest son of the late Capt. M. P. Stewart, J.P., of Plas Lodwig, Bangor, North Wales, and Mrs. Stewart, Colmac, Parkstone, Dorset. He was educated at Cheltenham College. In 1914 he was offered a post in the War Land Department, which he held until the present year, when, at his own request, he was transferred to the R.F.C. In 1914 he married Miss Dorothy Stella Adams, younger daughter of Mr. and Mrs. Sydney Adams, "The Heath," Petersfield. His second brother, Capt. Norman Stewart, Royal Scots, was killed at Hooge in September, 1915.

Sub-Flight Lieutenant PETER CRAWFORD WOOD, R.N., who was killed whilst flying on October 23rd, was the only surviving son of J. Crawford Wood, Alkerton House, near Banbury, Oxfordshire.

## Married.

On October 5th, at Watton, Norfolk, Lieutenant J. C. BURNEY-CUMMING, Gordon Highlanders and R.F.C., eldest son of Mr. and Mrs. Atherton Cumming, St. Albans, was married to CONSTANCE, youngest daughter of Lieut. and Mrs. G. H. BODELL, Temple Gardens, Golders Green.

The marriage between Second Lieutenant WILLIAM ILAN VANE HUNT, R.F.C., only son of the late Rev. William Hunt, Senior Moderator, Trinity College, Dublin, and of Rathnapish, Co. Carlow, and MURIEL, elder daughter of Mr. A. W. SOAMES, M.P., 18, Park Crescent, W. 1, took place on October 28th, at Holy Trinity Church, Marylebone, at 10 a.m.

The marriage of Captain T. R. IRONS, R.F.C., son of Mr. and Mrs. T. Irons, of Sydney, Australia, and the Hon. WINIFRED SMITH, eldest daughter of Lord and Lady Colwyn, of Queen's Lodge, Colwyn Bay, took place on October 24th at St. Peter's Church, Eaton Square.

On September 12th at the District Registry Office, and on the 23rd October, 1917, at the Parish Church, Folkestone, Second Lieutenant F. G. ST. C. KEITH, Royal Fusiliers, attached R.F.C., was married to FLORENCE, only daughter of J. H. LEWES, of Calcutta.

The marriage arranged between Major BASIL H. TURNER, of the F.R.C., and HELEN, eldest daughter of the late Sir GEORGE FARRAR, Bt., D.S.O., took place on November 1st, at St. Luke's, Chelsea.

The marriage of Lieutenant HAROLD M. TYSOE, Lancers, attached R.F.C., elder son of the late Mr. Joseph Tysoe, C.E., and Mrs. Tysoe, Colwyn, Westcourt Park Road, S.E., to STELLA MAUD ASHBY, elder daughter of Mr. and Mrs. PERCY W. ROLLS, of Blackheath, S.E., took place on October 20th at Holy Trinity Church, Blackheath Hill, S.E.

## To be Married.

An engagement is announced between Lieutenant ADRIAN DE LAVISON, London Regiment, attached R.F.C., youngest son of the late Count de Lavison, of Cairo, and of Countess de Lavison, and grandson of Colonel H. H. St. Leger, D.S.O., and JOYCE WINIFRED MARY, elder daughter of Mr. and Mrs. Richard RAPP, of Elton Park House, Ipswich.

The engagement is announced between Second Lieutenant JAMES H. L. PURKISS, Hampshire Regiment, attached R.F.C., son of the late James Purkiss, general manager of the Midland and South-Western Railway, and of Mrs. Purkiss, of Culmstock, Devonshire, and Miss ELIZABETH ADELINE (ELLA) TYSOE, only daughter of the late Joseph Tysoe, M.Inst.C.E., and of Mrs. Tysoe, of Colwyn, Blackheath, S.E.



# The British Air Service

"PER ARDUA AD ASTRA"

UNDER this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

## Royal Naval Air Service.

Admiralty, October 24th.

The following Prob. Flight Officers (Temp.) have been promoted to rank of Flight Sub-Lieut. (Temp.), with original seniority: J. H. K. Roughsedge, W. J. Langlois, G. S. Shaw, L. E. Best, W. J. Pullen, H. L. de L. Verry, B. B. Caswell, the Hon. R. Gunliffe, V. D. Grant, L. E. M. Gillman, N. McL. Craig, W. S. Anderson, J. H. Johnson, F. M. McLellan, G. Raney, D. Snider, O. H. Cantrill, R. L. Johns, N. H. Bowie, J. N. Bicknell, E. G. Spooner, J. S. Leekie and A. C. Getley.

Probationary Flight Sub-Lieutenant.—R. B. Gibb, confirmed in rank of Flight Sub-Lieut., seniority Sept. 25th.

Mr. T. V. West entered as Prob. Flight Officer (Temp.), seniority Oct. 29th.

Mr. H. G. Harrison granted temporary commission as Lieut. (R.N.V.R.), seniority Oct. 23rd.

Admiralty, October 25th.

Ordinary Seaman (R.N.V.R.).—R. Dobson and G. R. Judge, both entered as Prob. Flight Officers (Temp.); seniority, Oct. 21st.

The following have been entered as Prob. Flight Officers, seniority as stated: W. U. Ingram; Oct. 12th. H. A. Brown; Oct. 14th. C. R. Smitheringale; Oct. 16th. R. F. B. Hall; Oct. 17th. R. G. Nunn; Oct. 18th. D. B. Adamson, J. R. Barrett, R. H. Burrows, A. MacD. Chalmers, H. H. Coulson, G. C. Crewley, D. H. Drew, L. A. Goldsmith, W. H. L. Halford, M. H. Hancock, P. Harris, E. A. Hodgson, F. N. Lawler, A. G. Loton, A. C. Mann, W. W. Meddings, F. C. Robinson, E. T. McC. Routledge, E. J. Wing and C. C. Woods.

Admiralty, October 27th.

The following Prob. Flight Officers (Temp.) have been promoted to rank of Flight Sub-Lieuts. (Temp.), with original seniority: F. J. S. Britnell, J. G. Fullerton, W. A. Isaacs, H. St. J. E. Youens, B. E. Barnum, H. A. Yates, J. D. Breakley, H. R. V. Fowler, W. Von. S. Pryor, P. W. Guncliffe, S. Lindsay, J. V. Ould, F. W. Pearson, D. C. Hopewell, T. C. Gordon, R. C. Berlyn and H. C. E. Bockett-Pugh.

The following have been entered as Prob. Flight Officers (Temp.), seniority as stated: H. S. Chapman; Oct. 13th. J. B. Binny; Oct. 21st. S. O. Pacey; Oct. 24th. H. W. Lister, E. F. Jones and E. F. Bates; Nov. 5th.

The following have been entered as Prob. Obs. Officers (Temp.), seniority as stated: R. C. B. Presland, C. J. Smith, U. G. A. Tonge, I. Hodgson, H. B. Cumming, G. H. Windsor, A. C. Lester, L. N. Duchesne, T. Ridd and J. E. R. Harwood; Oct. 27th.

Admiralty, October 29th.

Flight Sub-Lieutenant (Temporary).—E. O. D. Crean, promoted to Flt.-Lieut. (Temp.), seniority Oct. 1st.

Probationary Flight Officer (Temporary).—P. A. Russell, entered as Proby. Observer Officer (Temp.), with original seniority of July 15th.

Sub-Lieutenant, R.N.V.R. (Temporary).—A. K. Smithells, entered as Proby. Flt. Officer (Temp.).

The following have been entered as Proby. Flt. Officers (Temp.), seniority Oct. 24th:—F. E. C. Benstead, W. A. Bridge, G. Campbell, V. Croome, C. S. Davis, D. D. Davidson, D. B. C. Fulton, S. R. Hurren, S. A. Kemp, K. W. Marriner, E. F. Mattock, P. W. F. Mills, J. N. Nelson, W. S. Page, D. P. Rees, P. R. J. Roberts, I. C. Sanderson, R. D. Saunders, C. J. Sims, H. V. Skinner, R. B. Stock, J. A. C. Taylor, L. C. Townsend, H. F. Turner, R. W. C. Waugh and C. F. J. Leslie.

Temp. commissions as Lieut. (R.N.V.R.) have been granted to A. de Bear, R. Tyler, and J. S. Watson, seniority Oct. 27th.

Mr. P. A. Russell granted temp. commission as Flt. Sub-Lieut., seniority Sept. 18th.

## Royal Flying Corps (Military Wing).

London Gazette Supplement, October 24th.

The following appointments are made:—  
Flight Commander.—Capt. T. E. Withington, Oxf. and Bucks L.I., from a Flying Officer; Oct. 6th.

Flying Officers.—Temp. 2nd Lieut. (on prob.) H. Erskine, Gen. List, and to be confirmed in his rank; Sept. 28th. Lieut. A. E. Roodhouse, Canadian Engrs. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: G. A. Firby, C. Marsden, W. K. Dalglish, S. J. Squires; Sept. 29th. E. H. Piper, 2nd Lieut. J. G. W. March, R. War. R., and to be sec'd.; Sept. 30th.

Flying Officers (Observers).—Temp. 2nd Lieut. W. E. V. Richards, Gen. List; Aug. 30th, seniority June 27th. 2nd Lieut. C. Hyde, R.G.A., S.R.; Oct. 2nd, seniority, July 23rd. Temp. Capt. J. M. Beaufort, A.S.C., and to be transfd. to R.F.C., Gen. List; Aug. 25th, seniority July 30th. Temp. 2nd Lieut. S. W. Agar, W. York R., seniority July 30th, and to be transfd. to R.F.C., Gen. List; Lieut. N. R. Murphy, Canadian Inf., seniority Aug. 14th; Oct. 3rd.

Temp. 2nd Lieut. H. T. Batson, R.W. Surr. R., and to be transfd. to R.F.C., Gen. List; Sept. 10th, seniority, Aug. 15th. 2nd Lieut. J. D. Loraine, Durh. L.I., T.F., and to be sec'd.; Sept. 17th, seniority, Sept. 10th. Temp. 2nd Lieut. (on prob.) B. C. Gay, Gen. List, and to be confirmed in his rank; Sept. 18th, seniority, July 6th. Lieut. A. H. Pannill, M.C., Canadian Inf.; Aug. 31st, seniority, July 24th. 2nd Lieut. T. L. Settle, S. Staff. R., and to be sec'd.; Sept. 6th, seniority July 24th.

Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: F. L. Steben; Sept. 15th. E. D. S. Robinson; Sept. 3rd, seniority, July 30th. Temp. Lieut. G. W. Mumford, A.S.C., and to be transfd. to R.F.C., Gen. List; Sept. 18th, seniority Aug. 7th.

Special Appointment (graded as an Equipment Officer, 1st Class).—Temp. Lieut. C. H. D. Bonnett, Gen. List, and to be Temp. Capt. whilst so employed; Sept. 26th.

General List.—2nd Lieuts. to be Temp. Lieuts. whilst serving with R.F.C.: E. H. P. Cave, A.S.C.; A. N. Dickson, R.A.; R. A. Way, Wilts R.; C. P. Lowson, Rif. Brig.; B. D. Frost, Essex R.; C. M. G. Horton, R.A.; S. H. Griffiths, Ches. R.; R. H. Sloley, R.A.; W. C. Thompson, R.A.; A. D. Walker, S. Lan. R.; D. L. P. S. Stuart-Shepherd, E. Lan. R.; D. R. C. Gabell, Glouc. R.; E. C. H. R. Nicholls, R.W. Surr. R.; W. H. Markham, Manch. R.; C. H. M. Platt, R.W. Surr. R.; Aug. 1st. Temp. 2nd Lieuts. to be Temp. Lieuts.: F. G. M. Sparks, W. M. B. Skinner, H. A. Blundell, D. G. Rouquette, P. Brookes; July 1st. H. C. Clarke; Sept. 23rd. To be Temp. 2nd Lieuts. (on prob.): S. E. Mailer, late Temp. Capt., North'd Fus.; Oct. 1st. F. A. de V. Robertson, late Lieut., Ind. Army Res. of Off. D. T. Davis; Oct. 19th.

Supplementary to Regular Corps.—2nd Lieut. (on prob.) J. B. Martin relinquishes his commission on account of physical unsuitability as a Pilot or Observer; Oct. 25th.

## General Staff.

General Staff Officer, 3rd Grade.—Lieut. W. A. Hunter, Gen. List, from a Flying Officer, and to be Temp. Capt. whilst so employed; Oct. 15th.

The following appointments are made:—  
Wing Commander.—Capt. (Temp. Maj.) T. F. Rutledge, S.R., from a Sqdn. Comdr., and to be Temp. Lieut.-Col. whilst so employed; Oct. 6th.

Flight Commanders.—From Flying Officers: Capt. L. W. Hopkins, Canadian Local Forces; Aug. 2nd. Temp. Capt. C. N. Jones, Notts and Derby R.; Oct. 5th. And to be Temp. Capt. whilst so employed: Temp. Lieut. C. Courtneidge, Gen. List; Oct. 8th. Temp. 2nd Lieut. G. M. Turnbull, Gen. List; Oct. 18th.

Flying Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: F. W. Knox; July 31st. N. H. Kilby; Aug. 9th. C. H. Holcombe; Aug. 30th. R. C. Sansom; Sept. 10th. G. A. Jones-Ashwin; Sept. 26th. S. I. Chapman, G. O. Johnson; Sept. 27th. G. R. T. Marsh, J. M. Allen; Sept. 29th. E. E. Stammers; Sept. 30th. T. Roberts, R. S. Collins; Oct. 1st. 2nd Lieut. G. J. Strange, Dorset R., and to be sec'd.. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: E. A. Forbes, S. H. Smith, 2nd Lieut. (on prob.) G. O. Newton, S.R.; Oct. 2nd. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: M. H. Cleary, W. C. Hilborn; Oct. 3rd. Lieut. C. W. Bruce, Gord. Highrs., from Temp. Capt., R. Highrs., and to be sec'd. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: D. E. Morrison, H. L. Chandler, C. P. Donnison, J. L. Wingate, Lieut. R. E. Meredith, Canadian Inf.; Oct. 4th.

Flying Officers (Observers).—Lieut. J. S. Owden, Ind. Army Res. of Off.; Aug. 6th, seniority, Mar. 29th. Temp. 2nd Lieut. J. W. Winter, Garr. Bn., Norf. R., and to be transfd. to R.F.C., Gen. List; Aug. 12th, seniority, April 1st. Lieut. H. B. H. Dickinson, Ind. Army Res. of Off.; Aug. 6th, seniority, April 14th. Temp. 2nd Lieut. C. D. Walinck, attd. High. L.I., and to be transfd. to R.F.C., Gen. List; Aug. 25th, seniority, April 21st. 2nd Lieut. H. Sacre, R.F.A., T.F.; Aug. 12th, seniority, May 9th. 2nd Lieut. J. Hawke, Ches. R., and to be sec'd.; Sept. 1st, seniority, July 3rd.

Balloon Commander (graded as a Balloon Officer).—Temp. 2nd Lieut. G. G. L. Blake, Gen. List, and to be Temp. Lieut. whilst so employed; Sept. 3rd.

Equipment Officers, 2nd Class.—Temp. 2nd Lieuts., Gen. List, from 3rd Cl., and to be Temp. Lieuts. whilst so employed: J. S. Berdoe; Aug. 20th. G. J. Enguell; Aug. 22nd.

3rd Class.—2nd Lieut. G. Oliver, 2nd Lieut. J. C. Shakeshaft; July 31st. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: S. Crowther; Aug. 30th. H. Howard; Sept. 20th. Lieut. F. H. Allwood, Can. Gen. List; Sept. 24th. Temp. 2nd Lieut. (on prob.) W. H. Fearnside, Gen. List, and to be confirmed in his rank; Temp. 2nd Lieut. P. S. Taylor, Gen. List, from a Flying Officer (Obs.). Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: C. W. Mayne, G. J. Allday, F. Waldron; Oct. 1st. Temp. 2nd Lieut. C. A. Angrave, Gen. List, from a Flying Officer; Oct. 8th.

General List.—Temp. 2nd Lieuts. to be Temp. Lieuts.: E. C. Middleton, E. W. Pritchard, E. W. Everiss, R. C. Davies; July 1st. C. H. Davies; July 22nd. H. O. Hope; Sept. 6th.

Supplementary to Regular Corps.—Lieut. (Temp. Capt.) L. C. Angstrom relinquishes his commission on joining the American Aviation Service, and is granted the hon. rank of Capt.; Sept. 15th. 2nd Lieut. (on prob.) A. L. Schario resigns his commission; Oct. 24th.

General List (R.F.C.).—Temp. 2nd Lieut. L. S. Scarlett resigns his commission, with a view to entering an Officer Cadet Bn.; Oct. 24th.

Comds. to be Temp. 2nd Lieuts. (on prob.) (Sept. 26th): H. S. A. Dunlop, F. N. Finch, J. E. Hammond, J. D. Hardie, E. J. Noble, S. H. Owens, J. L. Wright, A. T. Williams, W. Allen, R. N. Bell, A. T. W. Boswell, R. L. Cane, A. W. Day, S. H. Hamblin, H. Hiley, W. A. Wilson, H. Clayton, J. Cooke, W. N. L. Cope, A. F. Foulger, E. P. Hulme, M. Jones, J. G. McDonald, G. Smith, A. R. Strachan, J. S. Stringer, R. W. Barton, S. L. Horsman, J. J. Ince, W. E. Johns, R. G. Langmead, R. H. Matthews, G. R. Poole, C. G. S. Shields, E. H. Cooke, A. P. Fitzgerald, T. Jamieson, R. V. Jennings, C. McCombes, P. R. Paul, J. Stewart, R. Clark, N. Cook, F. Hamilton, S. Harvey, J. E. Holden, J. Horrocks, A. E. Needham, L. C. Scroggie, F. J. Tilley, C. Waine, C. Cutler, C. Greaves, J. T. R. Proffitt, L. H. Weedon, R. W. F. Angus, T. Barr, T. F. Blair, J. W. Hughes, W. J. McKinley, G. F. Metson, G. Muir, J. H. Pollitt, W. J. Scarff, P. Stalker, J. Atkinson, S. Brierley, A. W. Buchan, A. Farrar, C. E. Fenton, W. Hewitt, S. R. Hickes, S. E. Kilbey, M. H. Luker, D. F. McColl, E. L. McCowen, E. P. O'Connor-Glynn, P. E. Youngs, T. R. Adair, G. McK. Craig, G. W. Harvey, S. C. Lambert, J. Lewis, J. H. Parry, C. F. W. Toone, H. A. Townsley, R. P. Whyte; J. F. Young, C. A. B. Caukwell, F. Christelow, S. W. Hollingworth, S. Urwin, H. Butterworth, C. A. L. Coatts, H. S. Fenton, H. W. Moore, L. C. Wraight, L. J. Cooke, G. H. Fowles, S. H. Potter, T. M. Ritchie, F. J. Shearer, G. Spier, F. C. Stanton, A. C. Thornitt, C. D. Boothman, E. A. Brownhill, W. H. Clarkson, J. B. Donaldson, H. Hollingsworth, H. Howarth, D. King, T. Peacock, W. Sangster, G. N. Campbell, H. L. Cross, J. H. Mainwaring, H. Marsden, J. N. Ogilvie, F. R. H. Pretlove, W. J. Salmons, C. S. Scobie, J. Curdie, F. W. Ely, J. R. R. Harvey, J. K. Hill, P. W. Lingwood, G. J. Maynard, L. S. Mersh, T. Tarrant, S. Engel, H. C. Jones, R. E. Linder, I. MacG. K. Lockhead, J. C. McCormick, D. Mallett, N. Sillars, J. W. Turner, I. L. Wood, D. H. Woodhouse.

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The following appointments are made:—

Flight Commanders.—From Flying Officers: Capt. H. J. Edgar, Ches. R. T.F.; Sept. 1st. And to be Temp. Capt. whilst so employed: Lieut. J. D. Belgrave, M.C., Oxf. and Bucks L.I.; Temp. 2nd Lieut. S. Cockerell, Gen. List; Sept. 1st. 2nd Lieut. W. B. Ives, W. York R., S.R.; Sept. 30th. Temp. Lieut. G. H. Hackwill, Gen. List; Lieut. L. F. Hutcheon, S.R.; Oct. 1st. Temp. Lieut. J. C. B. Firth, Gen. List; Oct. 8th. 2nd Lieut. (Temp. Lieut.) J. Cairns, M.C., R.E., T.F.; Temp. 2nd Lieut. H. G. Reeves, Gen. List; Oct. 9th.

General List.—Temp. Lieut. A. R. Rattray resigns his commission; Sept. 22nd. 2nd Lieuts., S.R., to be Temp. Lieuts.: W. A. Campbell; July 4th. A. N. Baker; July 5th. Temp. 2nd Lieut. J. N. Cunningham to be Temp. Lieut.; Sept. 6th. Temp. 2nd Lieuts., Gen. List, to be Temp. Lieuts. whilst employed with R.F.C.: C. W. Primeau; Aug. 20th. C. H. Holcombe; Aug. 30th. J. E. Drummond; Aug. 31st. Cds., from R.F.C., to be Temp.



2nd Lieuts. (on prob.): A. M. G. Cosgrave; Sept. 30th. R. C. van Ryneveld; Oct. 5th.

Cdts. to be Temp. 2nd Lieuts. (on prob.): A. Baird, A. C. Bishop, B. C. Budd, G. S. Burns, A. B. Campbell, M. Corrie, J. F. C. de Vomecourt, P. J. Dowell, A. R. Fahey, C. G. Furness-Williams, S. Griffin, L. Kent, E. G. King, F. W. Knight, J. V. Lewis, G. H. Lilley, H. F. Monypenny, D. S. Ogilvie, F. S. Passmore, W. G. Peters, H. A. D. Phillips, G. R. Priestley, J. B. Smith, C. W. Turner; Sept. 27th. A. J. R. Adam, A. W. Aird, E. N. Allott, L. H. Angus, W. A. Armstrong, G. W. Ashbrook, R. G. Ashby, A. E. N. Ashford, C. H. Ashworth, F. C. Bailey, G. W. Bagaley, J. W. Barr, G. F. Bassett, C. B. Bateman, P. J. Bayly, J. B. Bennett, M. Benjamin, A. O. Bentley, T. K. Bentley, C. J. Bevan, D. H. Bevan, L. E. Bickel, G. C. S. Bowring, V. A. Boule, A. E. Bourns, J. M. Boyce, S. B. Bradley, O. G. Britton, N. Bruce, A. J. E. Bryant, H. E. Cardwell, H. B. Challen, A. V. Colville, L. S. Court, C. Crewe, B. Critchley, K. W. Crosby, W. E. Crook, T. H. Crossman, S. T. Crowe, J. L. Cumming, W. M. Cumming, F. L. Dadds, C. K. David, J. L. Davies, C. Dixon, G. E. Dobson, R. G. Dobson, W. Dobson, T. D. Drury, G. M. Duncan, G. P. Dymond, C. Dyson, G. A. Elmslie, W. R. Elson, J. G. Fleet, P. H. Fowler, N. Garland, A. E. Goodwin, S. G. Gordon, R. J. Gross, R. T. Grummant, G. R. Haigh, T. O. Henderson, L. C. Hickey, F. L. Hill, M. Hubbard, G. W. Irving, P. F. Jefford, J. M. Johnson, J. R. Johnstone, E. A. Jones, F. E. B. Jones, H. L. Jones, A. L. Kidd, A. E. King, J. A. King, R. W. King, R. McL. Knox, O. W. Lang, J. H. V. Latham, J. Law, T. B. Lawrence, O. V. Lee, R. L. Leigh, L. R. Philippe (de Chapuiset Le Merle), W. T. Leonard, J. V. Lind, T. Llewellyn, G. N. Lloyd-Rees, G. G. Luffman, W. R. May, R. S. Milani, L. E. Mitchell, J. V. McDonald, R. M. McGregor, C. A. McIntosh, C. W. McKissock, R. J. Marion, R. Mayson, J. J. Meredith, K. O. Millar, R. Milne, A. McL. Mooney, J. S. Morgan, H. W. Morrison, C. F. Murrin, G. J. N. Norman, J. M. Ottewill, J. S. Pickles, W. C. Pierce, C. A. Posey, R. D. Rogers, F. R. Ross, J. Ross, V. S. Stevens, S. Sinclair, R. A. C. Skipper, H. W. Smith, R. J. Smith, R. G. Sparey, R. H. Storey, C. H. Strickland, J. M. Sutcliffe, C. F. J. Thompson, H. N. Thornton, P. G. Troughton, A. Turnbull, G. H. Waddup, J. N. Waterworth, H. Wearne, A. Wedge, H. W. White, A. Wild, C. Workman, A. W. T. Wright, L. H. Wrightmeyer; Oct. 25th.

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General Staff, G.S.O., 3rd Grade.—Lieut. (Temp. Capt.) I. H. D. Henderson, M.C., Arg. and Suth'd Highrs., from a Flight Comdr., R.F.C., and to retain his temp. rank while so employed; Oct. 11th.

The following appointments are made:—  
Flight Commander.—Lieut. A. P. Dickie, R. Highrs. (T.F.), from a Flying Officer, and to be Temp. Capt. whilst so employed; Oct. 1st.

Flying Officers.—Temp. 2nd Lieut. (on prob.) R. G. Berwick, Gen. List (since killed in aero accident), and to be confirmed in his rank; July 7th. 2nd Lieut. (on prob.) L. S. Brander, S.R.; July 19th. Temp. 2nd Lieuts. (on prob.) Gen. List, and to be confirmed in their rank:—A. H. Beach; July 29th. J. Buckley; Sept. 18th. Lieut. G. M. Shaw, Canadian Inf.; Sept. 20th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—J. Buckley; Sept. 23rd. E. A. Hulme; Sept. 26th. H. A. Marshall, Capt. L. E. Stevens, Canadian Inf. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—N. Parkinson, E. F. Wilson; Sept. 28th. C. R. Buscombe, R. A. Vosper; Sept. 29th. Temp. 2nd Lieut. A. E. Cartland, Gen. List; Lieut. W. C. Thompson, Canadian Exped. Force.

Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—H. M. Armstrong, G. C. McEwan, R. A. Mayne, J. N. Raby; Sept. 30th. Capt. F. G. H. Manville, M.C., Canadian Inf., from a Flying Officer (Obs.); Oct. 1st, seniority from March 13th, 1916. Temp. 2nd Lieut. (Temp. Lieut.) C. F. Drabble, Gen. List, from a Flying Officer (Obs.), seniority from Aug. 7th, 1916. Lieut. H. V. Brisben, Canadian Inf.; Oct. 2nd. 2nd Lieut. (Temp. Lieut.) W. Pallister, W. York R. (T.F.), from a Flying Officer (Obs.), seniority from Nov. 15th, 1916. Lieut. J. R. Geddes, Canadian Gen. List, from a Flying Officer (Obs.), seniority from Dec. 29th, 1916. Temp. Lieut. R. P. M. Whitham, M.C., Gen. List, from a Flying Officer (Obs.), seniority from Jan. 17th; Lieut. A. R. Morton, Canadian Inf.; and Lieut. G. A. Cranswick, York and Lanc. R., S.R., from a Flying Officer (Obs.), seniority from February 3rd. Temp. 2nd Lieut. (on prob.) V. F. Jaynes, Gen. List, and to be confirmed in his rank; and Lieut. W. F. Hamilton, Yeo. (T.F.), and to be secd.; Temp. 2nd Lieut. (on prob.) A. T. W. Goldsmith, Gen. List, and to be confirmed in his rank; Lieut. R. G. Smith, Canadian Inf.; Temp. 2nd Lieut. (on prob.) J. B. Mulvey, Gen. List, and to be confirmed in his rank; and Lieut. A. L. Hitt, D. of Corn. L.I., and to be secd.

Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—J. E. R. Hyson, W. H. Cameron, L. Bertrand, D. B. Brayshaw, W. E. M. Whitaker; Oct. 3rd. Lieut. T. M. Kerruish, Canadian R.; Oct. 4th. Lieut. P. J. Stuart-Smith, Canadian Gen. List; Temp. 2nd Lieut. (on prob.) D. Woodman, Gen. List, and to be confirmed in his rank; Temp. 2nd Lieut. S. H. Glendinning, Gen. List, from a Flying Officer (Obs.), seniority from Oct. 4th, 1916. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—T. N. P. Stack, C. Jackson; Oct. 5th. 2nd Lieut. O. Forster-Knight, Yeo. (T.F.), and to be secd.; Temp. 2nd Lieut. (on prob.) J. R. H. Liddell, Gen., List, and to be confirmed in his rank; Temp. 2nd Lieut. E. V. Clark, R. Fus., and to be transf'd. to R.F.C. Gen. List; and Lieut. (Temp. Lieut.) A. H. George, Ches. R. (T.F.), from a Flying Officer (Obs.), seniority July 31st, 1916. Temp. 2nd Lieut. (on prob.) J. E. Croden, Gen. List, and to be confirmed in his rank; Oct. 6th. Lieut. H. W. Johnson, Canadian Inf.; Temp. 2nd Lieut. (on prob.) C. V. Gardner, Gen. List, and to be confirmed in his rank; Oct. 7th. Temp. 2nd Lieut. W. A. E. Taylor, Gen. List; Temp. 2nd Lieut. G. F. Turner, Gen. List; Oct. 8th.

Flying Officers (Observers).—2nd Lieut. A. Urquhart, High. L.I. (T.F.), and to be secd.; Aug. 17th, seniority May 10th (substituted for the notification in the Gazette of Sept. 3rd.) 2nd Lieut. H. W. Hill, R.F.A., S.R. (Oct. 4th), seniority July 17th. Temp. 2nd Lieut. (on prob.) D. A. J. Munro, Gen. List, and to be confirmed in his rank; Oct. 6th, seniority July 17th. Temp. Capt. L. W. Burbidge, A.S.C., and to be transf'd. to R.F.C. Gen. List; Oct. 7th, seniority Sept. 10th. 2nd Lieut. D. M. Cassidy, M.C., R.A. (seniority Sept. 10th, and to be secd.). 2nd Lieut. J. M. Godfrey, R.A. (seniority Sept. 10th, and to be secd.); Oct. 9th. 2nd Lieut. F. J. McCullough, R.G.A., S.R.; Oct. 8th, seniority Sept. 10th. Lieut. O. A. Rowan, Can. Pioneers; Oct. 9th, seniority Sept. 23rd.

Assistant Instructors in Gunnery.—(Graded as Equipment Officers, 3rd Class).—Temp. Lieut. M. H. MacLucas, M.G. Corps, and to be transf'd. to R.F.C. Gen. List; Temp. Lieut. F. N. Singleton, M.G. Corps, and to be transf'd. to R.F.C. Gen. List; and Lieut. R. W. V. Midlane, K.R. Rif. C., and to be secd.; Oct. 1st.

Balloon Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—A. G. Freeman, C. M. Davis, G. S. Holloway, C. H. Jenkinson; Sept. 18th. Temp. 2nd Lieut. J. B. Anderson, D.S.O., Gord. Highrs., and to be transf'd. to R.F.C. Gen. List; 2nd Lieut. H. C. E. C. P. Dalrymple, R.G.A., S.R.; 2nd Lieut. A. A. Steward, R.F.A., S.R.; and Lieut. C. W. Hawker, M.C., R.F.A., S.R.; Oct. 5th.

Depot Commander.—Lieut. (Temp. Maj.) N. Goldsmith, R.A., from a Park Comdr., and to be Temp. Lieut.-Col. whilst so employed; Oct. 10th.

Special Appointments.—(Graded as Equipment Officers, 1st Class).—Capt. C. C. Waddington, Hamps. R.; Sept. 10th. Capt. E. R. Beney, Suff. R. (T.F.), and to be secd.; Sept. 27th.

Equipment Officers, 2nd Class.—2nd Lieut. A. M. Saywood, from the 3rd

Class, and to be Temp. Lieut. whilst so employed; Aug. 30th (substituted for the notification in the Gazette of Sept. 26th).

3rd Class.—Qr.-Mr. and Hon. Maj. W. A. Webb (ret. pay, late E. Lan. R.); May 21st.

Experimental Officers, 1st Class.—(Graded as an Equipment Officer, 1st Class).—Lieut. J. R. H. Whiston, Notts. and Derby R. (T.F.), from the 2nd Class, and to be Temp. Capt. whilst so employed; Oct. 1st.

2nd Class.—(Graded as Equipment Officers, 2nd Class).—From the 3rd Class (graded as Equipment Officers, 3rd Class):—Temp. Lieut. W. H. Hofert, Gen. List; 2nd Lieut. (Temp. Lieut.) W. W. Stainer, R. Suss. R. (T.F.); Oct. 1st.

3rd Class.—(Graded as an Equipment Officer, 3rd Class).—Temp. Lieut. H. E. O. Ellis, M.C., R.E., from a Flying Officer; Sept. 19th.

*School of Technical Training.*

Instructor.—(Graded as an Equipment Officer, 1st Class).—2nd Lieut. (Temp. Lieut.) R. G. Booth, S.R., from an Equipment Officer, 2nd Class, and to be Temp. Capt. whilst so employed; Oct. 22nd.

General List.—2nd Lieuts. to be Temp. Lieuts. whilst serving with R.F.C.:—R. L. Tribe, R.A., A. H. Whistler; Aug. 1st. Temp. 2nd Lieut. S. Eidinow resigns his commission; Temp. 2nd Lieut. (on prob.) J. Pollock resigns his commission on account of ill-health contracted on active service, and is granted the hon. rank of 2nd Lieut.; Oct. 27th. Actg. Sgt. A. E. Cartland, from R.F.C., to be Temp. 2nd Lieut.; Sept. 29th.

Cadets to be Temp. 2nd Lieuts. (on prob.).—S. Y. Proudfoot, W. F. Russell; Sept. 23rd. T. Allan, W. Arthur, H. E. G. Bowen, C. W. Cameron, E. McL. Cleland, I. MacK. Dempster, C. Flanagan, G. Gilham, P. G. Greenwood, W. Haddow, F. W. Helsby, H. Hutchinson, L. Lomax, R. F. Newton, A. J. Ord, W. G. Pearson, S. Power, K. Preston, D. H. Prosser, H. Royston, M. R. Skinner, F. Shaw, R. E. Summerfield, A. Thoroton, J. W. Thompson, C. E. Tudball, C. F. Warren, C. Witham, T. McGovern; Oct. 1st. S. W. Walker; Oct. 2nd. The dates of appointment of the Temp. 2nd Lieuts. (on prob.), Gen. List (R.F.C.), notified in Gazette of Oct. 3rd, pages 10243 and 10244, should be Aug. 26th and 27th, and not Sept. 26th and 27th.

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*Military Wing.*

The following appointments are made:—

Wing Commanders.—From Sqdn. Comdrs., and to be Temp. Lieut.-Cols. whilst so employed (Oct. 8th): Capt. (Temp. Maj.) R. G. D. Small, Leins. R.; Capt. (Temp. Maj.) C. S. Burnett, Res. of Off.; Capt. (Temp. Maj.) W. H. C. Mansfield, D.S.O., Shrops. L.I.; Oct. 15th.

Squadron Commanders.—From Flight Comdrs., and to be Temp. Maj. whilst so employed: Lieut. (Temp. Capt.) C. R. Rowden, M.C., Worc. R.; Lieut. (Temp. Capt.) E. R. Pretymann, Som. L.I.; Capt. H. W. von Poellnitz, Linc. R.; July 2nd. Temp. 2nd Lieut. (Temp. Capt.) C. H. R. Johnstone, Gen. List; July 6th. Lieut. (Temp. Capt.) I. T. Lloyd, S.W. Bord.; July 16th. Capt. A. C. Clarke, Welsh R.; Aug. 1st. Capt. R. H. Freeman, M.C., Worc. R., S.R.; Lieut. (Temp. Capt.) G. D. Hill, Hrs.; Lieut. (Temp. Capt.) J. L. Chalmers, M.C., S.R.; Aug. 11th. Lieut. (Temp. Capt.) J. A. Crook, M.C., S.R.; Aug. 15th. Temp. 2nd Lieut. (Temp. Capt.) H. B. R. Grey-Edwards, M.C., R.A.; Aug. 18th. Capt. F. C. Baker, D. of Corn. L.I., S.R.; Sept. 11th. Temp. 2nd Lieut. (Temp. Capt.) J. Sowrey, Gen. List; Sept. 20th.

Flight Commanders.—From Flying Officers, and to be Temp. Capt. whilst so employed: Lieut. F. McQuistan, R.F.A., T.F.; Aug. 25th. Lieut. E. A. Packe, Oxf. and Bucks. L.I.; Oct. 10th.

Flying Officers.—Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: T. B. Pritchard; July 23rd. B. H. Caswell; Aug. 19th. J. Waterhouse; Aug. 26th. C. C. Matthews; Aug. 31st. Capt. W. A. Hannay, L'pool R., from a Flying Officer (Obs.), seniority, Jan. 4th. Temp. 2nd Lieut. L. S. Kiggell, R. War. R., and to be transf'd. to R.F.C., Gen. List. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: G. H. Corsan; Sept. 24th. N. S. MacGregor; Sept. 28th. Lieut. F. E. Brown, R. Dub. Fus., S.R., from a Flying Officer (Obs.); Oct. 1st, seniority, Aug. 29th, 1916. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: G. H. Box; Oct. 1st. B. W. Knuckey; Oct. 4th. B. A. Walkerdine, W. W. Sharpe, T. P. Morgan; Oct. 6th. G. W. R. Pidsley; Oct. 7th. C. D. B. Stiles, R. W. Godfrey; Oct. 8th. 2nd Lieut. J. M. R. Miller, K.O. Sco. Bord., S.R., from a Flying Officer (Obs.), seniority Sept. 26th, 1916; 2nd Lieut. A. Glynne, S.R., from an Experimental Officer, 3rd Cl. (graded as an Equipment Officer, 3rd Cl.); Oct. 9th. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank: G. E. F. Elliott, D. R. MacLaren; Oct. 10th. Temp. Lieut. A. T. Wynyard-Wright, Gen. List, reverts to Flying Officer on ceasing to be employed as an Asst. Instr. (graded as an Equipment Officer, 2nd Cl.), School of Aerial Gunnery; Sept. 16th.

Balloon Commanders (graded as Balloon Officers).—From Balloon Officers: Lieut. W. F. N. Forrest, R.G.A., S.R.; Oct. 2nd. Lieut. A. M. Pearson, S.R.; Oct. 6th.

Park Commander.—Lieut. (Temp. Capt.) E. Stokes, S.R., from an Equipment Officer, 1st Cl., and to be Temp. Maj. whilst so employed; Oct. 1st.

Equipment Officers, 2nd Class.—From the 3rd Cl., and to be Temp. Lieuts. whilst so employed: Qr.-mr. and Hon. Maj. W. A. Webb, ret. pay, late E. Lan. R.; June 8th. Temp. 2nd Lieut. E. M. S. Levin, Gen. List; Sept. 11th.

*Schools of Instruction—Schools of Military Aeronautics.*

Assistant Instructors (graded as Equipment Officers, 2nd Class).—From Equipment Officers, 3rd Cl., and to be Temp. Lieuts. whilst so employed: Temp. 2nd Lieut. L. R. W. Lloyd, Gen. List; Temp. 2nd Lieut. A. E. Lindon, Gen. List; 2nd Lieut. J. McDonald; Oct. 10th.

*School of Technical Training.*

Instructor (graded as an Equipment Officer, 1st Class).—Maj. T. O. H. Lees, R. Mar. L.I., an Equipment Officer, 1st Cl.; Sept. 14th.

General List.—The Christian names of Temp. 2nd Lieut. (on prob.) Norman Sinclair MacGregor are as now described, and not as in the Gazette of Sept. 28th. Following, from R.F.C., to be Temp. 2nd Lieuts.: Sgt. W. A. E. Taylor, Sgt. G. F. Turner; Oct. 8th. To be Temp. 2nd Lieuts. (on prob.): H. E. Taber; Sept. 1st. Actg. Sgt. J. McKeown, from R.F.C.; Oct. 8th. J. E. Tod; Oct. 10th. Cpl. H. L. Nelson, from R.F.C.; Oct. 12th. Sgt. Maj. A. Patterson, from R.F.C.; Oct. 15th. Pte. J. A. F. Henderson, from A.S.C. (M.T.), A. R. Conder, A. Robinson, L. E. Curry, A. E. Curtis, H. Hilsdon, W. J. Aubert, H. W. Nicholl, H. C. Atkin, A. Rowland; Oct. 19th.

Memoranda.—From R.F.C., to be 2nd Lieuts.: Sgt.-Maj. H. T. H. Copeland; Sept. 4th. Temp. Sgt.-Maj. A. H. Simpson; Oct. 5th.

Supplementary to Regular Corps.—Lieut. (Temp. Capt.) J. Bell relinquishes his commission on appointment to Australian Flying Corps, and is granted the hon. rank of Capt.; Oct. 28th. 2nd Lieuts. to be Lieuts.: A. Ward, (Temp. Capt.) H. W. Mills, F. L. Luxmoore, S. Hay, G. L. Rodwell, R. S. Larkin, N. E. Chandler, C. L. Baldwin, C. C. White, J. E. Arnott, H. B. Burrell, G. R. Kull, F. H. Goodwin, F. A. D. Grace, A. W. Crombie, S. Wilkinson, A. K. H. Maitland, C. Crawford, G. F. Wilson, C. S. Hickie (since died of wounds), S. M. Baber, (Temp. Capt.) C. Musgrave, J. C. Young, H. Blofeld, M.C., L. B. Clarkson, (Temp. Lieut.) A. W. Payne, J. N. Stephens, L. G. P. Warren, A. V. H. Gompertz, J. E. Edgar, F. B. B. Shand, E. L. Pape, H. T. Lydford, J. M. R. E. St. Amory, G. E. P. Elder, S. Davis, J. L. Lovesay, D. L. Hollis, F. A. Smith, (Temp. Lieut.) P. R. Hutchinson, A. S. Turner, C. W. Barnsley, J. J. Bartlett, T. Woodman, J. Page, E. E. Cutts, R. M. Ward, A. P. F. Rhys-Davids, M.C., W. D. B. Taylor; Sept. 1st. 2nd Lieut. A. G. Smith is



dismissed the Service by sentence of a General Court-martial; Oct. 6th. 2nd Lieuts. (on prob.) are confirmed in their rank: G. O. Newton, J. W. Myall, C. N. Le Mercier, J. Cowan, A. E. Bush, V. C. Chapman, A. J. Stopford. The Christian names of 2nd Lieut. Floyd Newman Shumaker are as now described and not as in the *Gazette* of Sept. 13th, 1915.

*London Gazette Supplement, October 29th.*

The following temporary appointments are made at the War Office:—

**Director-General of Military Aeronautics.**—Bt. Lieut.-Col. (Temp. Major-Gen.) J. M. Salmond, C.M.G., D.S.O., R. Lanc. R., and to retain his temp. rank whilst so employed, vice Lieut.-Gen. Sir D. Henderson, K.C.B., D.S.O.; Oct. 18th.

**Staff Captains.**—Lieut. (acting Capt., R.E.) G. F. Evans, R.E., S.R.; July 26th. Lieut. (Temp. Major) H. G. Gold, R.F.C., S.R., from a special appointment (graded as a Park Commander), to relinquish the rank of Temp. Major, and to be Temp. Captain whilst so employed; Oct. 8th.

The following appointments are made:—

**Wing Commander.**—Lieut. (Temp. Major) A. T. Watson, S.R., from a Sqdn. Comdr., and to be Temp. Lieut.-Col. whilst so employed; Oct. 1st.

**Flight Commanders.**—From Flying Officer, and to be Temp. Capt. whilst so employed:—2nd Lieut. (Temp. Lieut.) C. E. Saunders, Gord. Highrs. (T.F.);

Oct. 12th. Temp. Lieut. D. B. King, Gen. List; 2nd Lieut. C. E. Barrington R.A.; Temp. 2nd Lieut. R. E. G. Fulljames, Gen. List; Oct. 15th.

**Flying Officers.**—Temp. Lieut. A. G. Wingate-Gray, Trg. Res., and to be transfd. to R.F.C. Gen. List; July 17th (substituted for notification in *Gazette* of Aug. 4th). 2nd Lieut. R. J. Cullen, R. Highrs. (T.F.), from a Flying Officer (Ob.); July 28th, seniority (without pay prior to July 28th); Dec. 1916. Temp. 2nd Lieuts. (on prob.), Gen. List, and to be confirmed in their rank:—H. H. Hartley; Aug. 16th. W. S. Smallwood; Aug. 31st. C. L. Clutterbuck; Sept. 12th. G. T. C. May, R. S. Rucker; Oct. 6th. H. W. Turner, A. H. Berg, H. R. Gould, D. C. Black, I. W. T. Fraser; Oct. 8th.

The appointments of the following, notified in *Gazette* of Oct. 2nd, are antedated as follows:—

Lieut. R. I. V. Hill, Welsh R. (T.F.), to July 16th; Lieut. J. L. B. H. Cordes, Glouc. R., S.R., to Aug. 10th.

**Adjutant.**—Major J. W. F. W. Ashby, R. Suss. R. (T.F.), from an Equipment Officer, 3rd Cl.; Oct. 19th.

**Equipment Officer, 1st Class.**—Temp. Capt. R. F. Stapleton-Cotton, Gen. List, from a Flight Comdr.; Oct. 18th, seniority (without pay or allowances) Feb. 18th.

**General List.**—Temp. 2nd Lieut. E. G. Thompson to be Temp. Lieut.; July 1st.



## AIRCRAFT WORK AT THE FRONT.

### OFFICIAL INFORMATION.

#### British.

*General Headquarters, October 22nd.*

"On the 21st inst. the fine weather continued and the improvement in visibility enabled a great deal of artillery observation work and photography to be done. During the day a total of 4 tons of bombs were dropped by our aeroplanes on aerodromes near Courtrai and Roulers, on a large gun position near Douai, on billets east of Lens, and on other targets in the battle area. At night nearly 3 tons of bombs were dropped by us on Roulers and Lichtervelde railway stations, where fires were started, and on hostile aerodromes in the vicinity of Courtrai and Roulers. One of our pilots arrived at a German aerodrome as the enemy's night bombing machines were getting off, and dropped his bombs amongst them. Heavy fighting took place in the air, chiefly well over the enemy's line. Twelve hostile machines were brought down and three others were driven down out of control. Another German machine was shot down by anti-aircraft gunfire. Eight of our machines are missing, including one which has not returned from night bombing. The Naval Squadrons attached to the Army have been fighting throughout these operations and accounted for a large share of the hostile machines brought down."

*Admiralty, October 23rd.*

"On the night of October 21st and 22nd naval aircraft carried out a bombing raid on Melle railway sidings near Ghent. Several bombs were dropped on the objective. During the afternoon of October 22nd a bombing raid was attempted on St. Denis Westrem Aerodrome, but, owing to very thick clouds, our machines dropped their bombs on Zeebrugge Mole. Two small vessels alongside were hit, and bombs burst close to seaplane base and buildings on mole. All our machines returned safely."

*General Headquarters, October 23rd.*

"On the 22nd the weather broke, almost preventing flying until the afternoon. In spite of the rain and bad visibility our aeroplanes worked with our infantry in their attack, continuously reporting their progress and assisting them with machine-gun fire. A large number of rounds were fired at ground targets, including hostile machine-gun emplacements and hostile troops in shell holes, on the march and in villages. Many bombs were dropped by day on hostile billets and hutments as well as on German infantry in shell holes and trenches. During the last few nights the enemy has dropped a good many bombs in our forward areas, but last night his machines were not nearly so active, except in the neighbourhood of Dunkirk. As soon as it was dark our aeroplanes vigorously attacked seven enemy aerodromes. The bombs fell near hangars and aeroplanes which were out on the ground. Later in the night Courtrai railway station was attacked. A train was hit and the rear portion of it burst into flames. There was little fighting during the day. Two enemy machines were brought down. Two of our machines collided in the air over the enemy's lines, and one other of our aeroplanes is missing."

*General Headquarters, October 24th.*

"The weather is wet and stormy. On the 23rd inst. the weather was unfavourable for flying, and nothing of special interest to report occurred in the air. One of our aeroplanes reported missing on the 21st inst., has since been located. The pilot of the machine is slightly wounded."

*General Headquarters, October 25th.*

"Last night the factories and railway communications in the vicinity of Saarbrücken were attacked by our aeroplane squadrons with excellent results. Over three and a half tons of explosives were dropped on the Burbach Works, just west of Saarbrücken, by naval machines. The damage caused was considerable, and many fires were observed. 3,335 lbs. of explosives were dropped on the railway stations, junctions and goods sidings in and around Saarbrücken by another squadron. Many direct hits were obtained, resulting in numerous explosions. One train proceeding to Saarbrücken received a direct hit from a big bomb and was destroyed. A total of 5 tons of explosives were dropped by us. The enemy's anti-aircraft defences were strong. At first the weather conditions were good, but later they became very bad, with rain, low clouds and a strong wind rendering the return of our machines most difficult."

"On the 24th inst. there was a slight improvement in the weather on the British front, though thick, drifting clouds and a very strong west wind made observation and fighting over the enemy's lines difficult. 154 bombs were dropped during the day on the enemy's billets, 12 heavy bombs on an aerodrome near Courtrai and 71 others on German troops in trenches and in the open. At times fighting was severe. Four hostile machines were brought down by our aeroplanes and one was shot down by our infantry. Three other German machines were driven down out of control. Six of our aeroplanes are missing."

*General Headquarters, October 26th.*

"During the raid into Germany, carried out by our aeroplanes on the night of the 24th-25th inst., another ton of bombs was dropped on the Burbach works, west of Saarbrücken, in addition to the 3½ tons already reported, making a total of 6 tons of bombs dropped in the course of the night's operations. Three of the machines which took part in the raid are missing."

"On the 25th inst. the weather was impossible for flying during the day, but at nightfall the sky cleared for a few hours, and our bombing machines left the ground and attacked four hostile aerodromes; 45 heavy bombs were dropped, and in one case a direct hit was obtained on a group of hangars. Before all of our machines had returned the weather suddenly became bad again, and those of our aeroplanes which were still out had great difficulty in reaching their aerodromes. One machine has not returned."

*Admiralty, October 27th.*

"During the afternoon of the 26th inst. bombing raids were carried out by naval aircraft on Varsenaere Aerodrome and on Thourout Railway Junction. Bad weather conditions rendered observation difficult. All our machines returned safely."

*General Headquarters, October 27th.*

"On the 26th inst. rain fell most of the day. In spite of this our aeroplanes went out and performed valuable work, locating our attacking infantry and reporting suitable targets to our artillery. Aeroplanes flying at a low altitude fired 10,000 rounds from their machine guns on hostile troops endeavouring to repair wire, on the enemy's horse and mechanical transport on roads and on his infantry on the march and in shell holes. Two of our machines flew down the main streets of a town at the level of the housetops, firing at bodies of hostile troops. Some fighting took place at low altitudes in which three German machines were brought down and one was driven down out of control. Two of our machines are missing."

*General Headquarters, October 28th.*

"On the 27th inst. large numbers of our own and the enemy's aeroplanes were out from early morning until dark. A great deal of artillery work was done by our machines, and several thousand rounds were fired from heights ranging between 100 and 1,000 ft. at hostile targets on the ground. During the day 29 heavy bombs were dropped on Roulers Station, six on Abelec Aerodrome, 121 lighter bombs on hostile billets east of Lens and 124 on other targets opposite the battle front. As soon as it was dark our night-flying squadrons continued the bombing, and dropped over 4 tons of bombs on seven of the enemy's aerodromes and on three important railway stations. Several bursts were observed near hangars and on the railway tracks, while one bomb fell on a train, setting it on fire. The enemy's fighting machines were very active and aggressive, making repeated attacks on our bombing machines, which none the less never failed to reach their objective. In air fighting 11 hostile machines were brought down and seven others were driven down out of control. Nine of our machines are missing."

*Admiralty, October 28th.*

"On the night of October 26th-27th bombs were dropped by the R.N.A.S. on Lichtervelde Railway Junction, direct hits causing a heavy explosion, followed by numerous smaller ones. Thourout Railway Junction was also attacked, the bombs falling close to a moving train, which stopped at once, a large explosion being observed. In addition, Cortemarck Railway Junction was bombed. During the afternoon of October 27th bombing raids were carried out on Sparappelhoek Aerodrome, on Engel Aerodrome and on the Ostend-Thourout railway line south of Engel. A great number of patrols were carried out. Two enemy aircraft were driven out of control, one of which fell in the sea. All our machines returned safely."

*Admiralty, October 29th.*

On the evening of October 27th the Royal Naval Air Service carried out bombing raids on the following objectives:—(a) Enemy aerodromes at Engel and St. Denis Westrem. Many tons of bombs were dropped close to sheds and railway line. (b) Railway junctions at Cortemarck and Lichtervelde. About two tons of bombs were dropped. One of our machines failed to return. At noon on October 28th the enemy aerodrome at Varsenaere was bombed. Direct hits on sheds were made. During the same raid bombs were dropped on Stal-hillebrugge Station, near Bruges. During the numerous patrols which have been carried out an enemy machine was shot down and seen to crash."

*General Headquarters, October 29th.*

"On the 28th inst., although the weather was fine, a thick haze hung over the lines, greatly hindering work in the air. Our low-flying aeroplanes fired a great many rounds at the enemy's troops in his trenches and in shell-holes. During the day over 100 bombs were dropped by us on hostile aerodromes and billets. At night Gontrode aerodrome and Courtrai station and billets and railway stations in the neighbourhood of Roulers were bombed. There was not much fighting owing to the mist. One German machine was brought down, and one was driven down out of control. One of our machines is missing."

#### French.

*Paris, October 25th.*

"German airmen have dropped two bombs on Nancy. There were no victims."

"On October 24th and 25th enemy machines were brought down by our pilots or fell into their own lines out of control."

*Paris, October 27th.*

"In the evening of the 25th German aeroplanes dropped about twenty bombs of large calibre on Dunkirk. There were about thirty victims among the civilian population."

*Paris, October 29th.*

"German aviators bombarded the region of Dunkirk on October 27th and 28th. There were no victims."

#### Italian.

*Rome, October 23rd.*

"Weather conditions were favourable to aerial activity. Two enemy machines were brought down by one of our aviators; one, a German, fell within our lines near Gargaro, and the other in front of our positions to the north of Podlaka."

*Rome, October 23rd.*

"On October 19th a group of light enemy units was sighted in the lower Adriatic. Italian aeroplanes and light warships were immediately sent to attack



# COMPARATIVE TESTS OF WING SECTIONS.\*

By ALEXANDER KLEMIN and G. M. DENKINGER.

In our issue of August 23rd, 1917, were given the results of tests on six U.S.A. wing sections. In view of the variations in efficiency with size of model and wind velocity, no true

of the C.P. In Fig. 1 are given the curves for  $K_y$  and  $K_x$  for the various sections, and Fig. 2 those for  $L/D$ .

It will be noted that the values of  $K_y$  check very closely with the European results in every case, but that the figures for  $L/D$  are, in the case of the R.A.F. wing, better than the original ones, while, on the other hand, the Eiffel 32 sections tested at the M.I.T. gave a maximum value markedly inferior to that obtained by M. Eiffel for a similar wing.

The M.I.T. tests were all run at a speed of 30 m.p.h., and the models used were 18 x 3 in., whereas the tests made at the National Physical Laboratory on the R.A.F. wings were run at a speed of only 30 ft. per sec., and the models were 15 in. by 2½ in.

Eiffel's model was 35.4 in. by 5.9 in., and three tests were made, at speeds of 22.4, 44.8, and 67.2 m.p.h.

TABLE I.

R.A.F. 3 Wing.

$i$	$K_y$	$K_x$	$L/D$	C.P.
-4°	.000082	.000175	..	..
-2	.000601	.000125	4.8	.785
-1	.000879	.000109	8.0	.620
0	.000110	.000101	11.0	.522
+1	.001314	.000100	13.2	.470
2	.001554	.000105	14.9	.435
4	.001963	.000126	15.6	.385
6	.002369	.000159	14.9	.352
8	.002777	.000207	13.4	.332
12	.003439	.000315	10.9	.315
14	.003481	.000378	9.2	.298
14½	.003481	.000405	8.6	.293
15	.003481	.000425	8.2	.290
16	.003472	.000465	7.4	.295
18	.003406	.000598	5.7	.328
20	.003376	.000908	3.7	.382

(N. P. L.)

R.A.F. 6.

$i$	$K_y$	$K_x$	$L/D$	C.P.
-4°	.000400	.000133	-3.44	..
-2	.000072	.000090	0.92	..
-1	.000285	.000081	3.40	.682
0	.000571	.000077	7.20	.522
1	.000821	.000069	12.10	.445
2	.001072	.000068	15.75	.401
4	.001477	.000090	16.58	.360
6	.001873	.000128	14.14	.328
8	.002268	.000167	13.69	.310
10	.002634	.000207	12.92	.298
12	.002882	.000255	11.18	.289
14	.003018	.000321	9.28	.292
16	.003045	.000434	6.92	.300
18	.002987	.000698	4.48	.319
20	.002871	.000887	3.20	.360

(M. I. T.)

EIFFEL 32.

$i$	$K_y$	$K_x$	$L/D$	C.P.
-4	.000242	.0001115	..	..
-2	.000159	.0000735	2.2	.330
-1	.000378	.0000765	4.9	.327
0	.000591	.0000747	7.9	.320
1	.000798	.0000785	10.2	.318
2	.001011	.0000843	12.0	.310
4	.001467	.0001059	13.9	.305
6	.001894	.0001305	14.5	.304
8	.002250	.0001741	12.9	.308
12	.002732	.000324	8.4	.335
16	.002908	.000710	4.1	.357
18	.002761	.000846	3.3	.370
20	.002642	.000956	2.8	.378

(Eiffel)

Past experiments, as well as those now under consideration, indicate that the value of  $K_y$  in a wing is virtually independent of the size of the wing and the wind speed, but that  $K_x$  depends on  $VL$ , and decreases as  $VL$  increases. The magnitude of this effect varies in different wings, and is very large in the Eiffel 32. The values usually quoted are those for the highest speed, which showed a maximum of 18.4, but the maxima for 45 and 22 m.p.h. were only 16.6 and 13.4, respectively, the last figure being inferior to that obtained at M.I.T.

It is evident from this that the superiority of the Eiffel 32 section is more apparent than real, and that, for tests under similar low-speed conditions, there are several sections which are superior to it in every way, aerodynamically speaking, except as regards the C.P. travel.

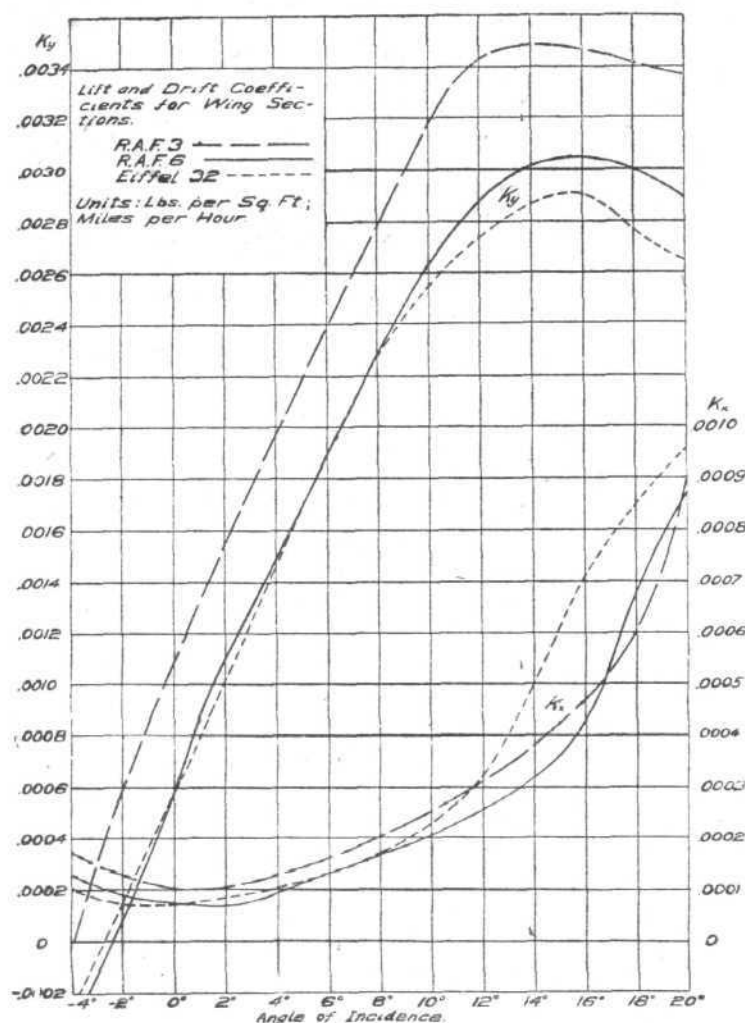


Fig. 1.

comparison can be made between such sections and others in common use unless the tests are all made on the same size of model and at the same wind speed. To make such comparison possible tests have recently been carried out at

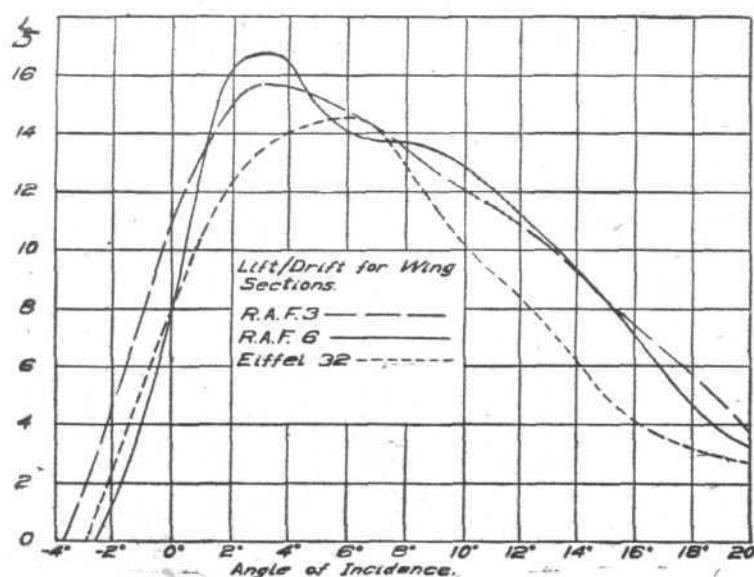


Fig. 2.

the Massachusetts Institute of Technology on the R.A.F. 3, R.A.F. 6 and Eiffel 32 sections.

In Table I are tabulated values of  $K_y$ ,  $K_x$ ,  $L/D$ , and positions

\* "Aviation and Aeronautical Engineering" (U.S.A.).

It is impossible to say with certainty what the relations would be at the speeds used in flight, since the effect of speed on the drift coefficient of the Eiffel 32 is so very great that it is improbable that any of the other sections would increase

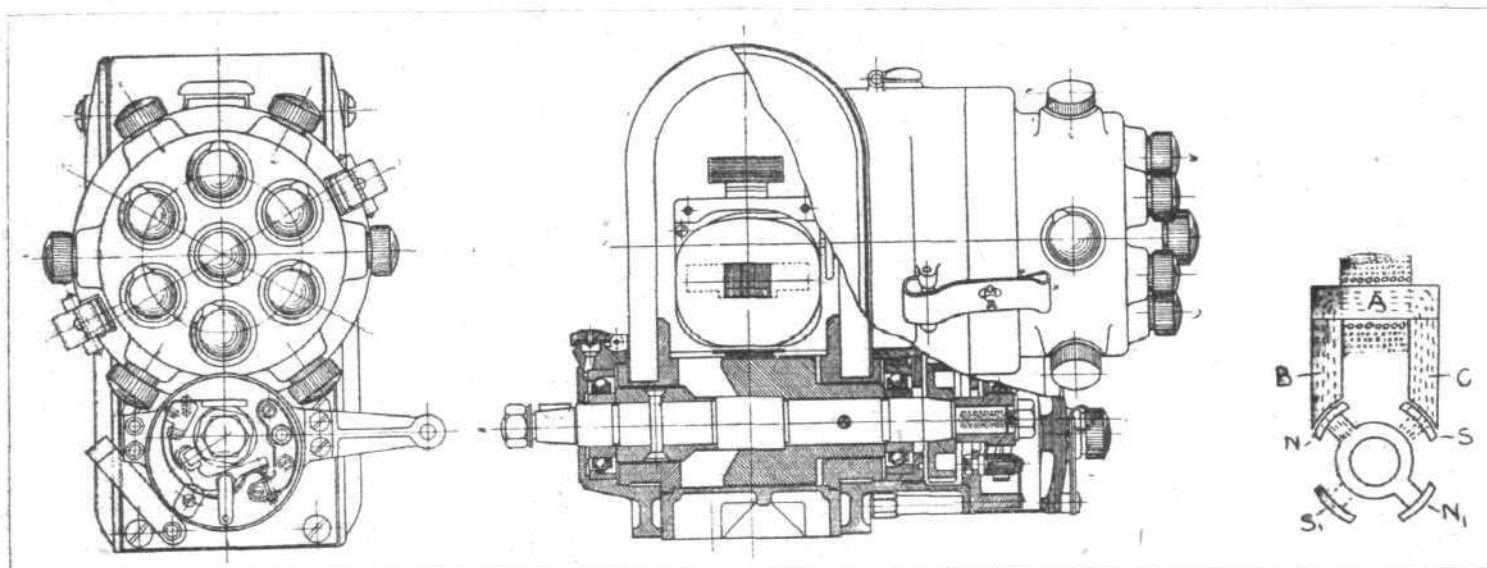
their maximum values of  $L/D$  in so high a degree for a change of velocity from 30 to 70 or more miles per hour. On the other hand, the Eiffel 32 has the disadvantage of a low lift coefficient.

## MAGNETO IGNITION.

### VI.—THE B.T.H. POLAR INDUCTOR MAGNETO.

AMONG the several magnetos mentioned by Mr. A. P. Young in his paper before the Aeronautical Society, one of the most interesting was the B.T.H. polar inductor magneto, which has been specially designed for use with twelve cylinder engines. It is believed to be the first twelve-cylinder magneto to be developed and standardised in this country, and has given good results both on the test bench and in the air. It gives four sparks per revolution, and so runs at one-and-a-half times the engine speed. So successful has it proved that the firm

through which the circular ends of the polar inductors pass, leaving an extremely fine air gap between the inside face of each pole piece and the annular surface of the end of the polar inductor which it surrounds. The magnetic flux passes radially from the pole-piece through one inductor to the laminated field piece forming one extension or support of the core of the armature, on through the armature down the second field piece to the other inductor, and the opposite pole piece.

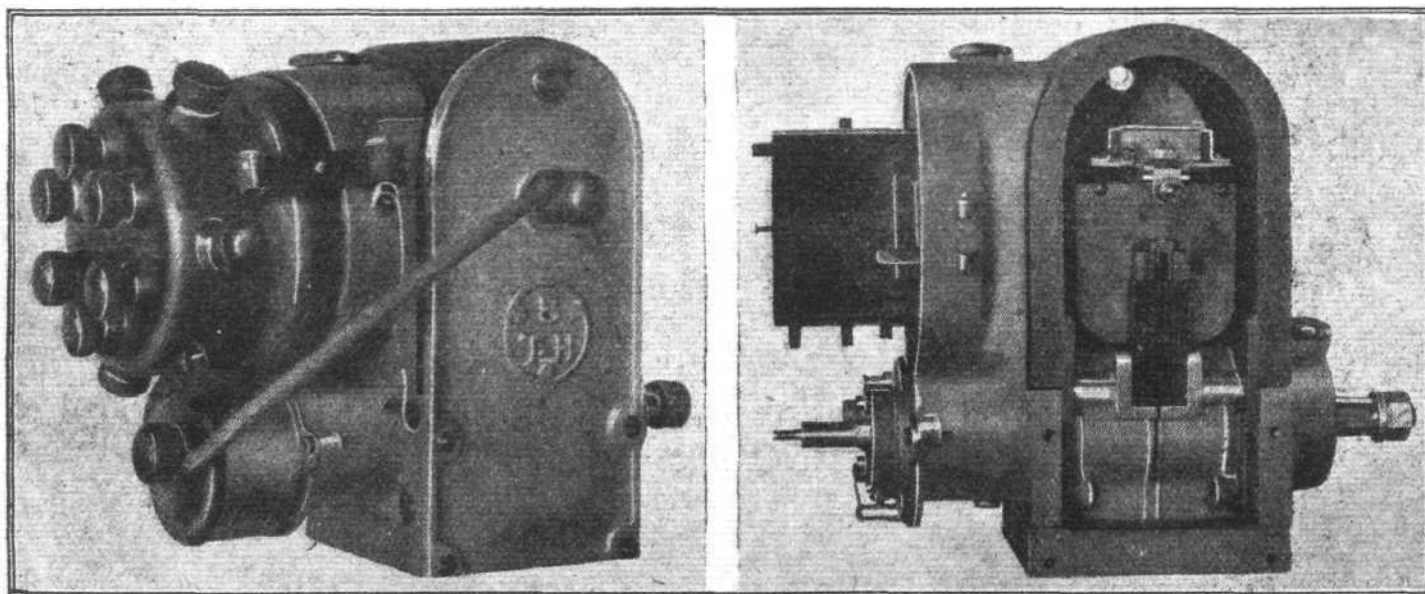


THE B.T.H. POLAR INDUCTOR MAGNETO.—Drawings showing the general arrangement of the parts. On the extreme right is a diagram showing the working of the polar inductors.

propose to standardise a similar machine for eight cylinder working by simply changing the distributor mechanism and the gearing and running it, of course, at the same speed as the engine.

The general arrangement of the machine is shown in the drawing, from which it will be seen that the rotor consists of a shaft, made of non-magnetic steel, on which two polar inductors are mounted at right angles to each other, and rivetted in position. The magnets are placed transversely above this shaft, and their ends are fastened to two soft iron pole pieces,

The way in which the necessary reversals of the magnetic flux through the armature are secured can be followed by the aid of the diagram, in which A represents the armature core, B, C the field pieces, N, N<sub>1</sub> the polar inductor at the north side of the magneto, and S, S<sub>1</sub> the polar inductor at the opposite side. In the position shown the magnetic flux passes from N through B to A and C, and so to S, but when the rotor has rotated a quarter of a revolution the inductor N will lead the flux to C, whence it will pass through A to B and so to the other inductor S<sub>1</sub>. Another quarter of a revolution will bring



GENERAL VIEW OF THE B.T.H. POLAR INDUCTOR MAGNETO.—On the right the cover plate has been removed to show the armature, field-pieces, condenser, &c.



the inductor  $N_1$  opposite B, so causing a further reversal of the magnetism in the core, and so four reversals are secured for each revolution.

The armature windings are arranged on a brass spool on a laminated iron core, which, in turn, is fixed by two clamping screws to the two laminated field pieces as shown in one of the photographs. This view also illustrates how the field pieces are fixed in the central casting, which carries the pole pieces and forms the base of the machine. It also shows the condenser arranged above the armature. From the drawing of the end view of the machine the general arrangement of the contact breaker can be followed. It will be seen that it is operated by a four-part cam fixed to the end of the driving

shaft, and the contact-breaker-lever has been designed to give a very low moment of inertia; tests, it is stated, have shown that it will function satisfactorily when making 16,000 breaks per minute, corresponding to a speed of 4,000 revolutions per minute.

The distributor is of special design, having three distinct tracks, two of which are the distributing tracks, each provided with six segments. The brush holder contains five carbon brushes, and the safety gap is incorporated in the brush holder and rotates with it. A gauze window is provided in the front of the distributor, and in consequence of the rotation of the brush holder any products of ionisation have an easy chance of escape.

#### A Raid on Mannheim.

ACCORDING to the *Frankfurter Zeitung*, enemy flyers on the evening of October 24th flew over Mannheim, but were driven off by the defence fire without their making any attack.

#### Another on Metz.

AN official report in the *Metzer Zeitung* states that on October 21st a large enemy battle aeroplane was shot down by a German battle aeroplane within the precincts of the fortress of Metz, and the occupants were taken prisoners. It adds, that in the course of the air attack in the evening of October 21st five persons were killed and several Russian prisoners of war were slightly wounded.

#### British Medal for Orville Wright.

DURING his visit to Dayton, O., last Saturday, Lord Northcliffe formally handed to Mr. Orville Wright, the Albert Medal of the Royal Society of Arts which was awarded to him some time ago in recognition of his achievements in aeronautic research.

#### British Seaplane in Dutch Waters.

It was reported from The Hague on October 23rd that a British seaplane, with two officers and two mechanics on board, had been found near Westcapelle and taken to Flushing. The machine had been drifting for 23 hours before being picked up by a Dutch torpedo boat.

#### French Honour for Glenn Curtiss.

As a mark of appreciation for his work in the interests of aviation the Aero Club of France has elected Mr. Glenn H. Curtiss to life membership of the club.

#### The Lost Zeppelins.

A MESSAGE from Paris states that, contrary to the first idea, the "L50" did not descend voluntarily to land a portion of her crew. It is believed that, one of the gondolas being caught in a tree and being torn away, the crew did not await further developments but promptly jumped out. What remained of the airship then drifted away and was lost in the fog.

#### Fine Artillery Registration Work.

WRITING with regard to the French attack in the Aisne region, Mr. Henry Wood says, "I personally witnessed these giant guns (400, 370 and 380 mm.) lobbing ton shells over the Aisne crest, missiles visible to the naked eye from their departure from the cannon's mouth till, describing a magnificent arc over the crest, they began the downward plunge. Aeroplanes wirelessly regulated every shot so accurately that five fired six miles struck successively the same hole and penetrated the subterranean fortress."

#### A Gift from India.

FROM Simla it is announced that the Jam Sahib of Jamnagar has generously offered the Government a lac of rupees (£6,666) to purchase aeroplanes for use on any front. Needless to add, the offer has been gratefully accepted.

#### Nottingham's Gift to New Zealand.

AT Nottingham on Saturday, before a large gathering, the aeroplane subscribed for in the district was formally handed over by the Duke of Portland, Chairman of the Nottingham Chamber of Commerce, to Sir James Mills, representing Sir Thomas Mackenzie, the High Commissioner of New Zealand, who was unable, through indisposition, to be present. The Duchess of Portland named the machine "Nottingham." Miss Mackenzie attached to the machine a mascot in the form of a kiwi with the New Zealand motto "Onward." Major-Gen. Salmond, Director-General of Military Aeronautics, took charge of the machine, which will be used on the Western Front.

Lord Desborough, President of the Imperial Air Fleet Committee, presiding at a luncheon preceding the ceremony, said it was the object of the commercial classes to do all they

could to bring the war to a victorious termination at the earliest possible moment, and he could conceive of nothing which would bring about that result more speedily than the effective and preponderating power of the Air Service. New Zealand and all the Dominions had done much to materialise that preponderance, and they had only to recall the names of such men as Hamel, Capt. Ball, and Slack to remember the part that Nottingham and New Zealand and played in aeronautics during the war. Chambers of Commerce were doing a good work in presenting aeroplanes to the Dominions and in thus stimulating a friendship which would last far beyond the end of the war.

Sir James Mills, in accepting the aeroplane, reciprocated the feeling of friendship expressed on behalf of New Zealand, and remarked that that country and the Overseas Dominions generally realised that they were fighting not only for the Motherland but for their own existence against the oppression and tyranny which would follow if Germany had become top dog in this war, a fear which was now placed beyond the bounds of possibility.

#### "An Airman's Outings."

FROM the house of Blackwood have issued many notable books, and "Contact" in giving us "An Airman's Outings" has won his place with the best of them. We have had volumes almost without number dealing with the day's work of the military pilot, but "Contact's" writing stands out head and shoulders above all. Reading his tales, whether they be grave or gay, there is no doubt about them being real. Running through the book is a very strong vein of philosophy, but the author's high spirits and light heart enable him to point the moral without boring his readers—on the contrary, they enjoy it, and will look anxiously for the sequel to "An Airman's Outings," which—if the gods permit—is promised in a few months' time. The present book is largely concerned with the air-fighting around the Somme area during the latter half of last year, in which the author played his part, until a wound sent him back to "Blighty" for a rest. Although the book itself is practically given up to the work of the Flying Corps over the lines, in his preface the author shows that he appreciates the wider views upon aviation. On the subject of reprisals, for instance, he writes:—

"A proper apportionment of such aeroplanes as can be spared for offensive purposes could secure illimitable results. If for no other cause it would shorten the war by its effect on civilian nerves. What would be the effect on German war weariness if giant raids on fortified towns by a hundred or so Allied machines were of weekly occurrence? And what would be the effect on our own public if giant raids on British towns were of weekly occurrence?"

Although it is not mentioned in the book, we understand that the author's work in the air has won for him the Military Cross, and everyone who reads the book will wish him further successes and honours. Major-General Brancker, in an introduction, emphasises the growing importance of the aerial factor in war, and concludes: "War has been the making of aviation; let us hope that aviation will be the destruction of war." The price of the book is 5s.

#### "With the French Flying Corps."

IN his book which bears the above title, Mr. Carroll Dana Winslow gives us a picture of life in the French Flying Corps as seen by an American who enlisted in the Corps last year. Although it is all set down in a descriptive style, there is much that is interesting, albeit the writing is somewhat spoilt for many by the author's fondness for French terms. It will, however, give anyone a good idea of what goes to the making of a pilot in the French service. The author has also got together a very useful series of photographs, including some of the trenches. The book, which is published by Constable and Co., costs 3s. 6d.

# Models

## Some T. W. K. Clarke Models.

MODELS as far as aviation is concerned may be divided into three categories. Firstly, there are those which are produced with the object of demonstrating some new idea in design or construction. Secondly, there are those which are made to fly through the air. Thirdly, there are those which are simply reproductions in miniature of full-sized machines and are not intended for flight. Each class of model has its own definite purpose and value, although not unnaturally it is those which are made for flying which are of most interest to the model-maker generally.

In all these three fields of model work Messrs. T. W. K. Clarke and Co., Ltd., of Hampton Wick, Middlesex, have won

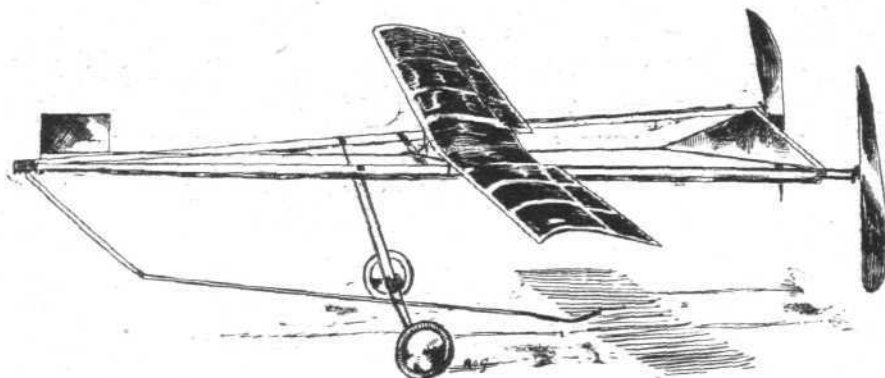
choose from, the prices ranging from one shilling to twenty-five shillings or more.

Three of the complete models are illustrated herewith. The Clarke R.O.G. monoplane is a twin-pusher monoplane which will fly a distance of 300 yards after leaving the ground. It has a span of 24 ins., is 30 ins. in length, while the propellers are 8 ins. in diameter. For those model-makers who, while not wishing to undertake the entire construction of a model, are yet anxious to do something towards the making of it, a complete set of materials can be obtained. As this set includes a built-up plane and two carved propellers, it means that the most intricate part of the work has been carried out. Apart from the pleasure the amateur will obtain from the work he puts in on the model, he will save money by buying the set of materials.

For those who prefer the tractor type monoplane there is the Deperdussin model, which after a run of from 2 to 4 yards will leave the ground and fly 150 yards. It has a span of 21 ins., is 26 ins. in length and has an 8-in. propeller. This is another model which the amateur should find within his powers of making, if he follows the instructions and drawings which are included in each set of materials.

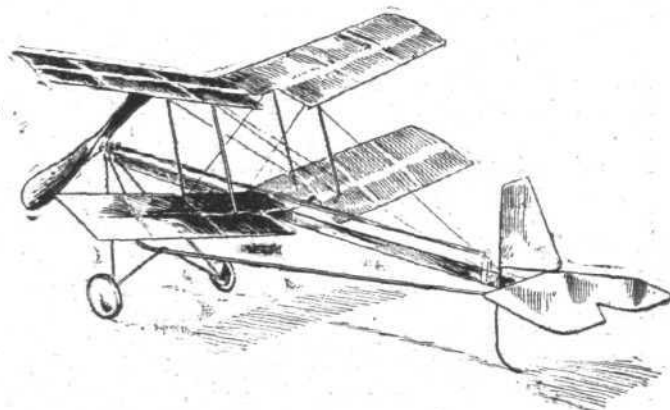
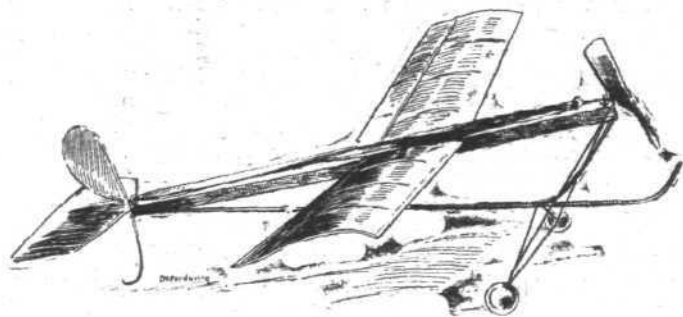
Somewhat of a departure from the usual run of models is what is known as the Sopwith biplane, which, as will be seen from our sketch, follows closely the lines of this successful full-sized machine. It makes a strong model, and will fly 120 to 150 yards after rising from the ground. It has a span of 25 ins., is 30 ins. long and has a 9-in. propeller.

Space does not permit of reference to all the models made by Messrs. T. W. K. Clarke and Co., but among others may be noted a loop-the-loop monoplane, which can be adjusted to carry out very realistically many of the "stunts" which are a feature of present-day flying. Another successful model, known as the Blériot Canard, can be had in two forms, either as a waterplane with three floats, or as an R.O.G. model. It is a twin-screw pusher monoplane, and in the former case flights



The T.W.K. Clarke R.O.G. twin pusher monoplane.

renown, and those who remember the first Aero Show at Olympia in March, 1909, will be under no misapprehension as to the reason for this success. Among the many exhibits in the model section of that exhibition, the miniature replicas of the Wright and Voisin machines shown by Mr. T. W. K. Clarke stood out in strong relief, as beautiful specimens of craftsmanship, while the equally well-made little Clarke flyers, with their elastic-driven propellers, were so efficient, that they not only provided a lead which other model-makers were not slow to follow but they remain practically unaltered to this day.



TWO POPULAR CLARKE MODELS.—On the left the Deperdussin tractor monoplane; and on the right the Sopwith biplane model.

Not content, however, with their early successes, the firm has marched with the times, and although, at the moment, they are heavily engaged on other important work, aero-modellists will find their wants fully catered for in every direction.

Enthusiasts who make their own models can obtain anything they require in the way of materials and fittings, while those who prefer a ready-made model have a good variety to

of 250 yards have been made, while as a land machine flights of 350 yards have been accomplished.

One important feature in connection with the Clarke models is that all the parts are standardised, so that it is quite easy to obtain replacements at any time, and the excellent illustrated catalogue published by the firm sets out most clearly the prices at which such replacements are obtainable.

## Hun Bombardment of Hospitals.

THE following protest against the Hun bombardment of Galatz hospitals has been issued by the Roumanian Minister:

On October 11th and 12th the town of Galatz was bombarded by the enemy. On October 11th 140 shells of heavy artillery, and on the 12th 30 bombs were dropped by five aeroplanes on the town. Four inhabitants were killed and 20 wounded. The principal hospital, in which there were

600 wounded and 50 nurses, was hit by 32 shells, several patients and nurses were dangerously wounded, the chapel destroyed, and the hospital had to be evacuated. These proceedings are contrary to the rules of The Hague Convention of October 18th, 1907, Article 27. The Roumanian Government raises the strongest protest against the bombardment of a hospital, and, according to Article 3 of the same Convention, will hold the enemy responsible for all the damage done.



## SIDE-WINDS.

*Aircraft Supplies*, the fortnightly journal of the Aircraft Supplies Company continues to grow in usefulness, and the number of various items in stock increases with each issue. In the current number just to hand there is a chart of equivalent breaking strains for turnbuckles, as well as an article on "Dope and How to Use It," by Mr. A. J. Wallace Barr. In all future issues it is proposed to include a new and original article of interest to aircraft manufacturers and designers, all of which will be intended to save time and give assistance in the proper organisation of aircraft stores and drawing offices. The next issue, to be published on November 8th, will include an article by G. H. Mansfield on "The Manufacture of A.G.S. Bolts and Nuts," and will include a very valuable table showing the weights and lengths of steel bars required per gross for various A.G.S. sizes. This same issue will contain an article on "Standard A.G.S. Parts for Aircraft," by Bernard Isaac, and will include several highly interesting charts of A.G.S. standard parts. Following issues will include charts dealing with separate weights of principal A.G.S. parts in decimals of an ounce, chart of A.G.S. washers, a comprehensive table showing at a glance A.G.S. numbers for all parts, table showing quantity of rivets, panel pins, gimppins, brass brads, &c., to a pound or ounce. Copies of *Aircraft Supplies* are sent regularly on request to all firms connected with the aircraft industry and to those in charge of works or service stores and departments, on receipt of applications on business or official paper, addressed to the company's new premises at "Ascol House," 125, Long Acre, London, W.C. 2, or to their West End offices, 166, Piccadilly, London, W. 1.

THE first annual gala of the Grahame-White swimming club, which was held recently at the Hampstead Baths, proved a great success. The ladies led off with a 60 yards handicap, and the programme of ten events was run off without a hitch. At the conclusion the prizes were presented by Mrs. Winston Churchill, to whom a vote of thanks was proposed by Mr. Claude Grahame-White. Among other visitors were the Hon. Mrs. Henley, Mrs. C. Grahame-White, and Mr. H. Matthews, who is one of the Company's oldest directors. The results were:—Ladies' 60 yards: 1st, Miss G. Thomas; 2nd, Miss G. Bellew; 3rd, Mrs. Cotton. Gent's 60 yards: 1st, W. Rezac; 2nd, R. Cook; 3rd, J. Tizzard. Three lengths sealed handicap (Club final): 1st, Wm. Weir; 2nd, A. Hood; 3rd, F. Feldman. Ladies' 60 yards open: 1st, Miss Blandford; 2nd, Miss De Coverley. 440 yards scratch club championship: 1st, H. Stewart; 2nd, J. Desack; 3rd, G. Rogers. Gent's 30 yards club (learners): 1st, H. Bright-

man; 2nd, W. Ward; 3rd, W. Law. Gent's 60 yards team race: B.T.H.M. Co. 1st. Gent's 60 yards international race: 1st, W. Weir; 2nd, J. Desack.

The final for Mrs. Churchill's challenge cup and the Hon. Mrs. Henley's trophy, to be won on points throughout the season. 1st, A. Hood, 26 points; 2nd, J. McCulloch, 25 points; 3rd, C. Tilston, 22 points.

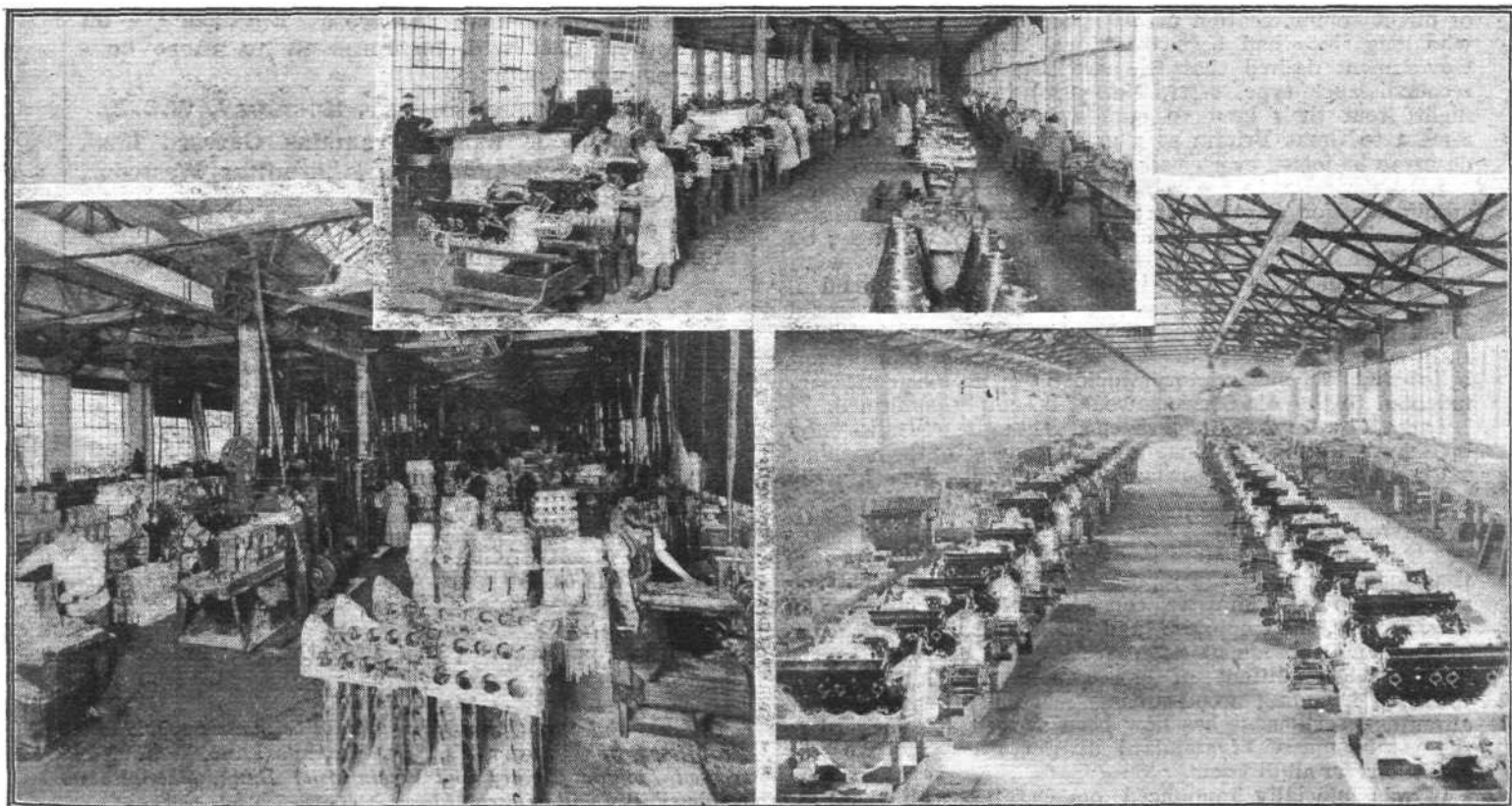
The Club diving competition was won by: 1st, E. Wholey; 2nd, J. Desack; 3rd, C. Tilston.

HAVING now quite recovered from the severe chill which he recently contracted while carrying out experimental flights on a flying boat in a heavy sea, Mr. Clifford B. Prodger, of the Prodger-Isaac Aviation Company, is busy once again testing H.P. and other "baby" craft. The firm, however, is still open to take on further testing work, and are ready to quote sub-contractors and others inclusive fees for test and experimental flights, the charges to include full insurance of the machines at Lloyd's against all risks for flights made prior to acceptance by the Air Board. Mr. Prodger's work in connection with the H.P. machines is so well known to our readers that it is unnecessary to dwell upon it here. He has several capable assistants, including Mr. J. Lankester Parker, who has gained an excellent reputation as a seaplane test pilot.

The firm are also prepared to make reports, from a pilot's point of view, on designs for new machines which may be submitted to them, as well as to survey and report on private aerodromes. Several firms who are proposing to lay out ground for this purpose, adjoining their works, have already consulted Mr. Prodger in this connection. Enquiries should be addressed to the company's offices at 166, Piccadilly, London, W. 1. Telephone: Gerrard 278 (two lines).

FORTUNATELY a fire which broke out at the Bournemouth Aviation Co.'s premises was discovered in time and was got under control before anything serious happened. By good luck the reserve store of school machines was not touched, and so school work goes forward "as usual." Work is now progressing on a new hangar, and the company are taking in some more ground adjoining the present aerodrome.

MR. GRAHAM HARRIS, who has seen service with the R.F.C. in France, and has now been invalided out, has now joined Messrs. C. C. Wakefield and Co. as an additional representative in the aviation department. He has been in aviation since 1912, his ticket being secured at Brooklands in June, 1913.



AT THE WOLSELEY AVIATION ENGINE WORKS.—Top: finishing engines ready for despatch; below, left: part of the aluminium shop; right: ready for despatch.

## LEGAL INTELLIGENCE.

### Air-Raids and Workmen's Compensation.

In the Bow County Court on October 23rd, His Honour Judge Graham, K.C., delivered a considered judgment in a case which raised the question as to whether a man who had been injured by a German bomb, during an air-raid, whilst at work, was entitled to an award under the Workmen's Compensation Act. The applicant was Henry Charles Allcock, a potman, who was blown off a ladder and injured during a raid, and claimed £8 5s. from an East London tavern-keeper by whom he was employed.

The judge held that it remained for the respondent to substantiate his case by proving that the applicant was running nothing more than a common risk. This, he thought, he had failed to prove.

The case of a man struck by lightning was often cited as a common risk, where applicant could not recover compensation. But between that and the present case there appeared to be some material distinction. In this and in the cases he had mentioned a large number of people were running the same risks which led to the accident, but they were exposed to those risks because they happened to be in a particular place by their employers' order, and not because they happened to be human beings who were all exposed to the same risk at all times and in all places, and whether employed or not, as in the lightning instance. It appeared to him that the risk the applicant ran could only be said to have been a common risk in the sense that all the people who happened to be in the street at the time, or all the people in the London area, were running the same risk at the same time. His award was in favour of the applicant for £8 5s.

Leave to appeal was asked for and granted.

### Italy Presents Captain Laureati's Machine.

At an aerodrome near London on October 25th the Italian Ambassador, H.E. the Marquis Imperiali, presented, on behalf of the Italian Government, to Lord Cowdray, as President of the Air Board, the two-seater aeroplane in which Capt. Laureati recently made his non-stop flight from Turin to London, a distance of 670 miles in 7 hours 22 minutes. Among those present were Lord and Lady Cowdray, Lady Ethel Baird, Admiral Mark Kerr, General Longcroft (representing Major-Gen. Salmond, Director-General of Military Aeronautics), Baron Mayor des Planches (Italian High Commissioner in London), Capt. Laureati, and Capt. Croce, the last-mentioned giving a display during a rain-storm.

The Italian Ambassador, in making the presentation, said Capt. Laureati's flight would remain memorable. To the Italian people it stood as a symbol. It revealed the possibilities of direct communication across space between two nations who long since had been traditional friends. The Italian Government desired that the aeroplane (S.I.A., two-seater, reconnaissance type, 7-B1, No. 5870) in which that first flight from their land to ours was accomplished should remain to Great Britain as a grateful testimony of Italy's desire to be joined ever closer to her mighty friend and Ally.

Lord Cowdray, in accepting the gift, expressed profound admiration for Capt. Laureati's magnificent performance. The machine would be treasured, he hoped everlastingly, by the British nation. When we thought of its achievement, flying 670 miles direct to the identical aerodrome as intended, without accident, without rest, in one continuous successful flight, he looked upon it as an emblem of the success which Italy so largely deserved. When peace came, our present belief that the final victory would be in no small measure indebted to the Air Services would be amply confirmed.

Lady Cowdray then christened the gift "Italia" by breaking a bottle of champagne on the "nose" of the machine. Cheers for King Victor and King George were heartily given.

### Woodworkers' Wages.

THE Ministry of Munitions announced on October 28th that following upon the report of a Committee which was appointed by the Minister, consisting of representatives of the Ministry, the employers, and the National Aircraft Committee, and subsequent negotiations with reference to the terms and conditions of employment for skilled woodworkers, including wood-cutting machinists employed on aircraft, a settlement has now been arrived at in regard to the establishment of standard district rates and working conditions for all districts.

It was officially announced on October 30th that the Minister of Munitions has decided to make an Order fixing the standard rates for skilled woodworkers in each district on the basis of the standard rates of carpenters and joiners, cabinet-makers, or coachmakers, whichever may be the

highest, with a minimum of 1s. per hour, as from November 1st.

This means that after November 1st the minimum rate for such men in London will be 1s. 3d. per hour. The new rate will include any war bonus that has been given up to date, but will not prejudice men who already have more favourable terms. The other main feature of the Order will be the establishment of overtime rules and other working conditions.

In regard to payment by results, the Minister has intimated that he will approve and support any satisfactory system that may be introduced by mutual agreement between the employers and workmen in any aircraft establishment.

### Dutch to Prevent Violations.

By way of preparing for the increased activity in the air which is expected next spring, the Dutch Minister of Marine has demanded an extraordinary credit of one million guilders for 1917, for extending the naval air service. It is stated that as violations of Dutch territory may become more frequent, an increased air service must prevent them.

### Aeroplanes in Riga Booty.

AMONG the booty enumerated in a *communiqué* on October 23rd, by the Germans, as having been taken in the operations against the islands in Riga Bay are 10 aeroplanes.

## PUBLICATIONS RECEIVED.

*Collected Researches of the National Physical Laboratory.* Vol. XIII, 1916. London: Harrison and Sons. Price 20s.  
*Report for the Year 1916-17.* Teddington: The National Physical Laboratory.

## Aeronautical Patents Published.

Applied for in 1917.

The numbers in brackets are those under which the specifications are printed and abridged, &c.

Published November 1st, 1917.

13,702. T. J. CONNOR. Landing chassis of flying machines. (109,991.)  
13,936. G. REDINI. Carburettor for use with aero engines. (101,639.)  
14,382. PATENT CORPORATION, AND W. B. THOMPSON. Flying machines. (110,031.)

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages xli, xlii and xliii).

## NOTICE OF REMOVAL.

The Offices—Editorial and Advertisement of "FLIGHT and The Aircraft Engineer"—on November 10th will be removed to more convenient premises at

36, GREAT QUEEN STREET, KINGSWAY, W.C. 2.

The telephone number remains Gerrard 1828, and the telegraphic address is Truditur, Westcent, London.

All communications should therefore, as from and including November 10th, be addressed to

36, Great Queen Street,  
Kingsway,  
London, W.C. 2.

## FLIGHT

and The Aircraft Engineer.

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